



# CREAMER ENVIRONMENTAL, INC.

CONTRACTORS & CONSULTANTS

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## LETTER OF TRANSMITTAL

TO

Environ International Corporation

20 Custom House Street

Boston, MA 02110

DATE: 3/2/16	JOB NO.: 16-0463
ATTENTION: Nicholas Steenhaut	
RE: Metal Bank NPL Site	

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Specifications



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1	3/2/2016	84	Submittal #4 Health and Safety Plan

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☒ For Acceptance

☐ For your use

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☐ Review & comment

☐ Approved as submitted

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**REMARKS**

**COPY TO:**

**SIGNED:**

*Meghan Murphy*

Meghan Murphy  
Project Coordinator

**HEALTH & SAFETY PLAN**  
for  
**Metal Bank NPL Site**  
**7301 Milnor St., Philadelphia, PA 19136**

Prepared by



for  
**Creamer Environmental Inc.**  
**16-0463**

**Issued: March 2, 2016**

Prepared by:

A handwritten signature in black ink, appearing to read 'Robert J. Kretvix', is written over a horizontal line.

Robert J. Kretvix, CIH, CET  
Principal Consultant

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APPENDIX I - STANDARD OPERATING PROCEDURES AND POLICIES

APPENDIX II - FORMS

APPENDIX III - (M)SDS & CHEMICAL INFORMATION

## HASP ACKNOWLEDGMENT

The following individuals acknowledge that they have read and understand this Health & Safety Plan:

[illegible]

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# 1 INTRODUCTION

## 1.1 SCOPE AND APPLICATION OF THE PLAN

The purpose of this site-specific Health and Safety Plan (HASP) is to define the health & safety requirements and designate protocols to be followed by Creamer Environmental Inc. (CEI) during activities at the Metal Bank NPL Site project located at 7301 Milnor St., Philadelphia, PA 19136 for the protection of site workers, the general public and the environment. Applicability extends to contractors, subcontractors, and visitors that enter the CEI site while construction activities are occurring. For the purposes of this HASP, the term "site" shall be used to identify construction areas associated in and around the CEI work area.

All CEI personnel, on-site contractors and subcontractors included (hereafter referred to as "project personnel"), shall be informed of the site emergency response procedures and any potential health or safety hazards of the operations. This HASP summarizes those hazards, and defines protective measures planned for the site.

This plan must be reviewed by all project personnel, and an agreement to comply with the requirements contained herein, must be signed by all project personnel and visitors who may enter the work areas prior to commencement of work.

During development of this plan, consideration was given to current safety standards as defined by OSHA and NIOSH.

All contractors and visitors at this site are expected to comply with all applicable government safety, environmental, & health regulations, as well as company policies. Worker protection standards include, but are not limited to -

- OSHA Hazard Communication (29 CFR 1910.1200)
- OSHA Lockout-Tagout (29 CFR 1910.147)
- OSHA Construction Standards (29 CFR 1926), such as -
  - Subpart C General Health & Safety Provisions
  - Occupational Noise Exposure (1926.53)
  - Subpart F Fire Protection
  - Subpart G Signs, Signals and Barricades
  - Subpart I Hand & Power Tools
  - Subpart J Welding & Cutting
  - Subpart M Fall Protection
  - Subpart P Trenching, Shoring and Excavation
  - Subpart Q Concrete & Masonry Construction
  - Subpart T Demolition
  - Subpart X Ladders

Should there be any apparent conflict between this plan and any of the above mentioned sources, procedures should err on the side of safety, and the more stringent provisions followed until a proper evaluation can be made to determine the appropriate course of action.

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## **1.2 APPLICABILITY TO VISITORS & INSPECTORS**

All visitors and inspectors entering the CEI-controlled work areas at the site will be required to read and sign a written compliance statement stating that they are knowledgeable and will comply with all provisions of this HASP. In addition, visitors will be expected to comply with all OSHA requirements, training (Section 4), and respiratory protection (Section 6). All project personnel, visitors, and inspectors will provide and care for their own protective equipment or arrange to acquire PPE from the health and safety staff.

In the event that any project personnel, visitor, or inspector does not adhere to the provisions of the HASP, he/she will be requested to leave the work site or area. All non-conformance incidents will be recorded in the site log by the site Health & Safety Officer.

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## 2 IDENTIFICATION OF KEY SITE PERSONNEL & MANAGEMENT

### 2.1 KEY SITE PERSONNEL CONTACTS

Title	Person or Organization	Contact Phone Numbers
<b>Prime Site Contractor</b> - Creamer Environmental Inc., 12 Old Bridge Road Cedar Grove, NJ 07009; phone: (201) 968-3300		
Project Manager (PM)	Gary Kowalski	office: 201-215-9628 cell: 201-376-7153
Site Supervisor / Superintendent (SS)	John Castellani	office: 201-215-9626 cell: 201-522-5089
<b>Health &amp; Safety</b>		
Site Health & Safety Officer (HSO)	John Castellani	office: 201-215-9626 cell: 201-522-5089
Certified Industrial Hygienist (CIH)	Robert J. Kretvix, CIH, CET	office: 908-237-9348 x101 cell: 908-397-7506
<b>Project Owner &amp; Other Representatives</b>		
Environ, Senior Manager	Nicholas Steenhaut	office: 617-946-6109
RA Consultants, On-Site Rep		office: cell:

### 2.2 ROLES & RESPONSIBILITIES

Creamer Environmental Inc. (CEI) has primary responsibility for supplying personnel and equipment for operations under a Site Supervisor/Superintendent's (SS) oversight and direction. CEI will also have an oversight function to ensure that the health and safety of all its project personnel is a primary concern.

The Site Supervisor / Superintendent has overall responsibility for ensuring that all aspects for the project are implemented and progress is constant per project specifications. As the representative for the prime contractor, the Site Supervisor / Superintendent has the responsibility to follow this HASP and implement the steps necessary to protect the health and safety of all workers on site, including all its subcontractors. The Site Supervisor / Superintendent will establish and ensure compliance with site control areas and procedures. The Site Supervisor / Superintendent has responsibility for all field activities and enforces safe work practices by all crew members. The Site Supervisor / Superintendent has ultimate responsibility for the safety of any visitors who enter the site. The Site Supervisor / Superintendent maintains communication with the project manager, site owner representatives and other client representative(s) as required.

The Health and Safety team is composed of the site Health & Safety Officer (HSO) and a Certified Industrial Hygienist (CIH). The HSO will generally be responsible for day-to-day implementation of the HASP. The HSO will make recommendations to protect the health and safety of all individuals on site. However, the HSO will confer with the CIH on matters of significant importance, such as recommendations for air monitoring and upgrading or downgrading PPE being used.



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The Health and Safety team in general is responsible for the recognition, evaluation and control of potential chemical, physical and biological hazards that may exist at the site during the scope of the project covered by this HASP. As part of these responsibilities, the Health and Safety team is responsible for day to day implementation of health and safety activities. The activities include but are not limited to the following:

- daily implementation of this HASP
- recordkeeping related to worker/visitor qualifications, and training
- implementation of air and thermal stress monitoring, including evaluation of the need for additional or modifications to the air monitoring program
- selection, use and modifications to personal protective equipment
- addressing questions from workers, project management and regulatory agencies related to health and safety matters at the site.

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### 3 SITE HISTORY, DESCRIPTION AND HAZARDS ANALYSIS

#### 3.1 PROJECT WORK DESCRIPTION

The site set up will consist of installation of an office/crew trailer to run the project from. The fence along the length of wall to receive the riprap will be removed and replaced at the completion of the work. During this period a temporary fence will be installed behind the sheeting for fall protection and to maintain security. The vegetation will be mowed in the work area to make it possible to traverse the work area.

The riprap will be delivered to the site in dump trucks and stockpiled periodically such that a crane with clamshell and/or a long reach excavator will be able pick it up and place it along the shoreline as required. The riprap installation will continue during the waler repair work in zones 1 and 3.

The waler repair in zone 2 requires the removal of the existing waler (double channel waler) to the limits shown on the plans and installation of a new pair of channels. New channels will be welded into place.

The welding will damage the coating in the area of the weld, and the exposed surfaces will be cleaned and recoated. The exposed areas where the coating has been removed or damaged will be cleaned and coated using field touch up kits that are compatible with the coating on the existing sheeting.

Site restoration will consist of reseeding disturbed vegetated areas and replacement of the chainlink fence along the sheeting line.

#### 3.2 CHEMICAL, PHYSICAL & SAFETY HAZARDS

##### 3.2.1 Primary Site Contaminants of Concern

Non-Volatiles in Soil (Possible Dust Exposure Concern)	Volatiles from Soil	Volatiles from Groundwater
polychlorinated biphenyls (PCB)	none identified	none identified

The site is a capped/contained National Priority List (NPL) / Superfund site. The known major contaminant at the site are polychlorinated biphenyls (PCBs), although soil and/or groundwater levels of PCBs are not available. This project is not expected to impact PCB contamination at the site nor expose workers to excessive PCB contamination.

Additionally, as with any construction site, hazardous materials can be expected to be present in various everyday forms. Some common types may include:

- Carbon monoxide from vehicle and generator exhaust
- Fuel and Lubricants (e.g., gasoline, diesel fuel, hydraulic oil)

- 
- Cleaning Agents (e.g., detergents, respirator sanitizers, hand cleaners)
  - Miscellaneous Chemicals (e.g., marking paint, bulk office supplies)

International Safety Cards (ISC) and/or (Material) Safety Data Sheets ((M)SDS), which describe chemical hazards for each contaminant of concern, are attached for all site contaminants in Appendix III. (M)SDSs are required for all hazardous materials brought on site pursuant to 29 CFR 1910.1200, including miscellaneous construction chemicals. The HSO will maintain a central file, accessible to all workers, which contains all (M)SDS and/or ISCs for any hazardous materials on the site.

### **3.2.2 Physical & Safety Hazards**

Construction sites may present numerous safety hazards such as:

- Excavations, holes and ditches
- Precariously positioned objects, such as boards and tools, that may fall
- Sharp objects, such as sharp metal on sheetpiling, nails, and broken glass
- Slippery surfaces
- Uneven terrain
- Dangers related to working near heavy equipment such as backhoes, cranes, dump trucks and other material handling equipment, e.g., vehicular traffic
- Biological hazards - ticks, mosquitos, animal bites (e.g., snakes, rats), poison ivy/plants

As such, workers must be aware of these hazards and exercise caution at all times. All unsafe conditions must be reported immediately to the HSO. While it is important to identify and be aware of potential physical hazards and the means by which to reduce the risks from the same, a detailed discussion of these is an insurmountable task. Although a task by task analysis of potential hazards is included in the sections below, the recognition, evaluation, and control of site activities associated with the potential hazards is best accomplished by the development, use, and implementation of standard operating procedures and guidelines, as well as ongoing consultation of applicable standards and regulations. Any such procedures or guidelines are attached in Appendix I.

## **3.3 TASK BY TASK HAZARD ANALYSIS**

The evaluation of potential health and safety hazards related to this project is based upon the knowledge of site background and anticipated risks posed by the specific operations covered by this HASP, and does not apply to any areas not specifically described.

The scope of this project is limited to the major project phases or tasks below:

- (1) Site Mobilization, Setup, & Clearing
- (2) Installation of Rip Rap
- (3) Repair of Waler
- (4) Proof Testing of Anchors
- (5) Site Restoration

The subsections that follow below describes each task and operation in terms of the specific hazards associated with it, and any protective measures to be implemented in order to reduce or eliminate those hazards. In addition, hazards and protective measurements associated with all phases of the project or general work tasks are also discussed. All noted protective measures will be implemented when appropriate throughout the duration of the project.

Situation or Equipment	Potential Hazards	Prevention Measure(s)
<b>General Hazards</b> - Certain hazards potentially exist throughout virtually all phases of the project. These preventative measures are designed to minimize or eliminate the risk the manifestation of these hazards.		
Use of heavy tools, bending and lifting activities.	Back strain	<ul style="list-style-type: none"> <li>▶ Workers will be instructed and are expected to use proper lifting techniques.</li> <li>▶ More than one employee will be used for tasks involving large, heavy or awkward equipment.</li> <li>▶ Sufficient rest breaks will be taken by employees to prevent excessive fatigue.</li> </ul>
Obstacles on work surfaces; mounting/dismounting vehicles; slippery surfaces; uneven terrain; working at elevations or around rip rap.	Slips, trips and falls	<ul style="list-style-type: none"> <li>▶ Good housekeeping will be implemented -work areas will be kept clean and uncluttered to a reasonable degree.</li> <li>▶ Walkways will be maintained free of obstructions and accumulated water.</li> <li>▶ Wiring, plumbing and hoses, etc., will be kept untangled and secured.</li> <li>▶ Walkways or fixed ladders will be kept clear of equipment, debris and other objects.</li> <li>▶ Be alert and observe terrain while walking to minimize slips and falls.</li> </ul>
Falling or rolling stones, heavy objects and equipment; sharp objects on walking surfaces.	Foot injuries - crushed or broken toes, punctures and abrasions on soles of feet.	<ul style="list-style-type: none"> <li>▶ Safety shoes with steel toes and slip-resistant soles will be used for all work tasks.</li> </ul>
Frayed, cracked or broken electrical cords; water in contact with electrical circuits and equipment.	Electrical hazards (shock, electrocution, burns)	<ul style="list-style-type: none"> <li>▶ Lockout/tagout procedures will be used to prevent the start-up or release of energy from electrical, mechanical, hydraulic or pneumatic equipment.</li> <li>▶ GFCI electrical outlets will be used for all outdoor work and/or indoor work wherever water is/may be present.</li> <li>▶ All defective tools will be tagged and removed from service immediately.</li> </ul>
Elevated equipment and work platforms.	Falling hazards; falling objects.	<ul style="list-style-type: none"> <li>▶ Fall protection to prevent personal injuries due to falls will be used when employees work in areas where fall hazards cannot be eliminated by reasonable means due to the location or nature of the work area. Fall protection is required at a height of 6 feet or greater.</li> <li>▶ OSHA-required overhead protection will be provided on heavy equipment which</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		<p>will not obscure the vision of the operator.</p> <ul style="list-style-type: none"> <li>▶ Visible barriers will be placed around all openings.</li> </ul>
Working with flammable liquids and compressed gases (e.g., acetylene); possible chemical contaminants present at the site.	Fire hazards - burns, damage to equipment, explosion.	<ul style="list-style-type: none"> <li>▶ Combustible and flammable liquids will be stored in OSHA-approved containers. Protected storage areas (e.g., flammable liquid cabinet) will be provided for bulk storage when necessary.</li> <li>▶ Compressed gases will be stored upright and secured to immovable objects when not in use.</li> <li>▶ Gases used for welding will be stored off the welding cart at least 20' apart or protected by a non-combustible barrier at least 5' in height.</li> </ul>
Operation of heavy equipment, generators, drilling operations and power tools.	High noise levels.	<ul style="list-style-type: none"> <li>▶ Noise monitoring will be performed when deemed necessary by the HSO.</li> <li>▶ Hearing protection may be required in some operations as determined by the HSO, such as working on or near heavy equipment.</li> </ul>
Severe weather (e.g., lightning, heavy winds)	Electrocution - struck by lightning. Damage to equipment and facilities.	<ul style="list-style-type: none"> <li>▶ Workers will stop work and proceed to a safe area if/when severe weather approaches.</li> <li>▶ Seek shelter away from trees and other structures that may conduct electricity.</li> <li>▶ Secure temporary structures and equipment in high winds.</li> <li>▶ Workers may return to work upon authorization of the HSO at least 15 minutes after the last lightning is observed or thunder is heard.</li> </ul>
Vehicular Traffic	Struck by vehicle or equipment	<ul style="list-style-type: none"> <li>▶ All workers exposed to vehicular or equipment traffic will wear high visibility traffic warning vests.</li> <li>▶ All equipment will be equipped with operating backup alarms.</li> <li>▶ Appropriate signage will be used for on-coming traffic.</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
Personnel and equipment working on boats or otherwise located in close proximity to bodies of water.	Drowning	<ul style="list-style-type: none"> <li>▶ Workers working on the berms or within 6 feet of water will wear U.S. Coast Guard approved life jackets or buoyant vests.</li> <li>▶ Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.</li> <li>▶ At least one lifesaving skiff will be positioned near the water where work is occurring.</li> </ul>
Improper storage and housekeeping	Potential for slips, trips and falls, as well as fires.	<ul style="list-style-type: none"> <li>▶ The work site will be maintained to a reasonable degree of cleanliness, free of recognized fire hazards. Materials will be stored in their proper containers. Wastes will be disposed in the proper receptacles.</li> <li>▶ Trash, litter, scrap and sawdust or shavings will not be allowed to accumulate. Work areas will be kept clean to prevent to accumulation of dust and scrap. Cleaning will not be accomplished using compressed air to blow dust out of equipment.</li> <li>▶ Means of exiting the site will be kept free of obstructions. Hazardous materials and flammables will not be stored near emergency exits so as to create a greater hazard during emergency evacuations.</li> <li>▶ Hazardous materials, such as flammable solvents, fuels, paints and adhesives, will be stored only in designated areas when not in use. Containers will be kept tightly closed with lids attached when not in use. Waste containers with funnels will be closed except when dispensing into those containers.</li> <li>▶ Paint, paint thinner, alcohol, naphtha, thinner and gasoline should be used only for their intended purposes. Flammable liquids of any kind must be kept in approved safety containers.</li> </ul>
<b>Site Mobilization &amp; Demobilization</b> - The Support area will be cleared of obstacles, vegetation and debris to the greatest extent practical in order to perform the job safely. Site will be restored after work is completed.		
Operation of heavy equipment	Lacerations, punctures or bruises from pinch points between equipment or objects in motion; accidents with moving vehicles.	<ul style="list-style-type: none"> <li>▶ Guards must be maintained and kept in place on all equipment as appropriate. Never operate equipment with guards removed.</li> <li>▶ Employees exposed to vehicle traffic will wear warning vests.</li> <li>▶ When workers are working within close proximity or loading into the bucket of</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		heavy equipment, the controls for the equipment must be locked out.
Cranes, hoists, backhoes and other elevated equipment	Accidental loss of load and overhead hazards; falling objects	<ul style="list-style-type: none"> <li>▶ Rigging and hoisting of the temporary structure shall be done in accordance with OSHA 1926.753 and Subpart CC, as applicable.</li> <li>▶ The swing radius of equipment will be barricaded at all times. Workers will not be permitted to stand or work under suspended loads or the swing radius of cranes.</li> <li>▶ A qualified rigger or Competent Person shall inspect rigging apparatus before use. This equipment includes but is not limited to control mechanisms, safety devices, hydraulic lines, hooks and latches and tire inflation. Damaged or defective equipment will be removed from service and replaced or repaired immediately.</li> <li>▶ Ensure that the throat hook closures are in place and fully closed.</li> <li>▶ Hoisting will be done only on level surfaces.</li> <li>▶ Only a qualified signal person will give signals to the operator.</li> <li>▶ Prior to lifting a load, the qualified signal person must verify that the areas is clear of personnel, or all others in the vicinity are aware of a load being lowered or lifted. Such personnel will be moved to a safe position away from the load.</li> <li>▶ No personnel are permitted to be transported on balls or hooks.</li> </ul>
	Electric hazards - overhead utilities	<ul style="list-style-type: none"> <li>▶ Both the equipment operator and qualified signal person will be continuously aware of overhead lines.</li> <li>▶ When working near overhead power lines, the boom and cables of equipment should be kept at least twenty (20) feet away from all electric wires, regardless of their voltage.</li> <li>▶ In transit and with no load and boom lowered if any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must ensure that a dedicated spotter who is in continuous contact with the driver/operator is used.</li> <li>▶ Any overhead wire should be considered an energized line until either the person who owns the line, or the electric utility authorities indicate that it is not energized, and it is tagged and marked as</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		such.
	Lifting and winching operations - Cuts or amputations from pinch or nip points; snapping cables or slings while moving equipment.	<ul style="list-style-type: none"> <li>▶ Winches, cables, slings and equipment will be inspected by the competent person prior to each shift.</li> </ul>
Generator connection	Connection to powered equipment, electrocution	<ul style="list-style-type: none"> <li>▶ Only qualified electricians will make electrical connections to equipment. All electrical conductors and equipment shall be approved. Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to workers.</li> <li>▶ Generators will be turned off and disconnected or locked out when electrical connections are made. Lockout-Tagout procedures shall be used when applicable.</li> <li>▶ Powered equipment shall be verified as electrically safe when making repairs or modifications.</li> </ul>
	High noise due to generator operation.	<ul style="list-style-type: none"> <li>▶ Noise monitoring will be performed when deemed necessary by the HSO.</li> <li>▶ Hearing protection may be required when working in close proximity to generators, such as checking oil levels during generator operation.</li> </ul>
<b>Installation of Rip Rap</b>		
Working with heavy equipment near water's edge.	Unstable surfaces for heavy equipment; accidental tipping of crane or backhoe.	<ul style="list-style-type: none"> <li>▶ Spotters or signalmen will be used to control vehicle movement and watch for pedestrians or other vehicles.</li> <li>▶ Qualified/competent heavy equipment operator will inspect and verify the condition of the surface and maximum loads prior to attempting a lift. Hoisting will be done only on level surfaces.</li> <li>▶ Only a qualified signal person will give signals to the operator.</li> <li>▶ Prior to lifting a load, the qualified signal person must verify that the areas is clear of personnel, or all others in the vicinity are aware of a load being lowered or lifted. Such personnel will be moved to a safe position away from the load.</li> </ul>
Operation of heavy equipment, generators, backhoes, cranes and power tools.	High noise levels.	<ul style="list-style-type: none"> <li>▶ Noise monitoring will be performed when deemed necessary by the HSO.</li> <li>▶ Hearing protection may be required in some operations as determined by the HSO, such as working on or near heavy equipment.</li> </ul>
	Traffic hazards	<ul style="list-style-type: none"> <li>▶ Heavy equipment has the right of way.</li> </ul>



Situation or Equipment	Potential Hazards	Prevention Measure(s)
		<p>Eye contact is to be maintained with the operator.</p> <ul style="list-style-type: none"> <li>▶ All heavy equipment and vehicles equipment will be equipped with backup alarms.</li> <li>▶ Traffic warning vests will be worn by all workers in close proximity to the work.</li> <li>▶ Spotters or signalmen will be used to control vehicle movement and watch for pedestrians or other vehicles.</li> </ul>
Cranes, hoists, backhoes and other elevated equipment	Accidental loss of load and overhead hazards; falling objects	<ul style="list-style-type: none"> <li>▶ Rigging and hoisting of the temporary structure shall be done in accordance with OSHA 1926.753 and Subpart CC, as applicable.</li> <li>▶ The swing radius of equipment will be barricaded at all times. Workers will not be permitted to stand or work under suspended loads or the swing radius of cranes.</li> <li>▶ A qualified rigger or Competent Person shall inspect rigging apparatus before use. This equipment includes but is not limited to control mechanisms, safety devices, hydraulic lines, hooks and latches and tire inflation. Damaged or defective equipment will be removed from service and replaced or repaired immediately.</li> <li>▶ Ensure that the throat hook closures are in place and fully closed.</li> <li>▶ Hoisting will be done only on level surfaces.</li> <li>▶ Only a qualified signal person will give signals to the operator.</li> <li>▶ Prior to lifting a load, the qualified signal person must verify that the areas is clear of personnel, or all others in the vicinity are aware of a load being lowered or lifted. Such personnel will be moved to a safe position away from the load.</li> <li>▶ No personnel are permitted to be transported on balls or hooks.</li> </ul>
	Electric hazards - overhead utilities	<ul style="list-style-type: none"> <li>▶ Both the equipment operator and qualified signal person will be continuously aware of overhead lines.</li> <li>▶ When working near overhead power lines, the boom and cables of equipment should be kept at least twenty (20) feet away from all electric wires, regardless of their voltage.</li> <li>▶ In transit and with no load and boom lowered if any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		<p>ensure that a dedicated spotter who is in continuous contact with the driver/operator is used.</p> <ul style="list-style-type: none"> <li>Any overhead wire should be considered an energized line until either the person who owns the line, or the electric utility authorities indicate that it is not energized, and it is tagged and marked as such.</li> </ul>
	Lifting and winching operations - Cuts or amputations from pinch or nip points; snapping cables or slings while moving equipment.	<ul style="list-style-type: none"> <li>Winches, cables, slings and equipment will be inspected by the competent person prior to each shift.</li> </ul>
Obstacles on work surfaces (e.g., pipes, wires, hoses); mounting/dismounting vehicles; slippery surfaces; uneven terrain; working at elevations.	Slips, trips and falls	<ul style="list-style-type: none"> <li>Good housekeeping will be implemented -work areas will be kept clean and uncluttered to a reasonable degree.</li> <li>Walkways will be maintained free of obstructions and accumulated water.</li> <li>Wiring, plumbing and hoses, etc., will be kept untangled and secured.</li> <li>Walkways or fixed ladders will be kept clear of equipment, debris and other objects.</li> <li>Be alert and observe terrain while walking to minimize slips and falls.</li> </ul>
<b>Repair of Waler</b>		
Hot Work - cutting and welding of sheet piling & tie backs	Fire hazards, burns, UV radiation, electrical	<ul style="list-style-type: none"> <li>A fire extinguisher will be present during all hot work activities</li> <li>The HSO will approve of all hot work operations in advance of the start of work and issue a Hot Work Permit.</li> <li>A backup person acting in the role of firewatch will be in the vicinity of the work throughout the hot work to ensure nearby combustibles materials have not been ignited. The firewatch will remain present for at least 30 minutes after the termination of hot work.</li> <li>Workers doing hot work will don the appropriate PPE, such as shaded welding helmet, gloves, flame resistant (FR) protective clothing against sparks and burns, and respiratory protection as needed.</li> <li>Compressed welding gases will be used and stored according to OSHA requirements 29 CFR 1926.350. Gas cylinders will be stored with all valves closed, upright and secured from falling. Valve protection caps will be in place while in storage.</li> <li>At the termination of daily activities, oxygen and acetylene cylinders will be</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		removed from welding carts and separated by at least 20 ft or a block wall at least 5 ft high unless the cart has a fire barrier to separate the cylinders.
Welding, cutting and brazing of metals.	Inhalation of fumes; contact with hot material; cuts from sharp metal edges; damage to retina of the eye from ultraviolet light; fire hazards caused by welding/cutting sparks and embers.	<ul style="list-style-type: none"> <li>▶ Eye or face protection is required during torch cutting operations. Face protection for torch cutting operations should be worn "as needed" based on evaluation by the HSO.</li> <li>▶ Welding requires both shaded eye protection and face protection due to constant UV exposure.</li> <li>▶ Gloves will be used during handling of sharp objects. Workers handling metal sheeting will don appropriate cut-resistant hand protection.</li> <li>▶ Cutting, welding and brazing will be done under a Hot Work Permit issued by the HSO.</li> <li>▶ If significant accumulations of combustible materials are present, including outdoor brush and debris, they will be protected from sparks using a non-combustible physical barrier or clearance of at least 35 feet.</li> <li>▶ A fire watch, if required as per the Hot Work Permit, will be designated to watch the area during the entire period of hot work and for at least 30 minutes after work is completed if combustible materials are present.</li> <li>▶ An ABC fire extinguisher will be positioned nearby to extinguish fires caused by the hot work. Both the fire watch and person performing hot work will be trained in fire extinguisher use.</li> <li>▶ Workers performing sheetpile cutting or welding will don proper work clothes, and tinted welding faceshield. P100 respirators may be required for extended periods of welding.</li> <li>▶ Oxygen and acetylene cylinders should be stored upright and securely fastened at all times. Oxygen and acetylene cylinders must be stored separately at a distance of at least 20 feet. When oxygen and acetylene cylinders are being used on a cart that has a fire barrier that separates the oxygen from acetylene, storage of cylinders is permissible.</li> <li>▶ Drums, containers and structures which were used for flammable materials or have the potential to contain flammable residual vapors/gases will be removed, filled with water and/or thoroughly cleaned and ventilated to prevent ignition</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
		of those vapors. No cutting/welding will occur directly on containers used for flammable liquids.
Elevated equipment and work platforms.	Falling hazards; falling objects.	<ul style="list-style-type: none"> <li>▶ Fall protection to prevent personal injuries due to falls will be used when employees work in areas where fall hazards cannot be eliminated by reasonable means due to the location or nature of the work area. Fall protection is required at a height of 6 feet or greater.</li> <li>▶ OSHA-required overhead protection will be provided on heavy equipment which will not obscure the vision of the operator.</li> <li>▶ Visible barriers will be placed around all openings.</li> </ul>
Ladder use	Injury or damage from falls off ladders or falling objects.	<ul style="list-style-type: none"> <li>▶ Ladders will be selected and used according to OSHA 29 CFR 1926 Subpart X.</li> <li>▶ Ladders or ramps will be set up such that the maximum distance from any worker is 25 ft.</li> <li>▶ All ladders will be inspected for defects and proper function by a competent person prior to use. Damaged or defective ladders will be taken out of use and marked out of service until repaired.</li> <li>▶ Whenever possible, extension ladders will be extended 1 ft out from the vertical surface for every 4 ft of ladder rise. Ladders will extend 3 ft above the top landing, and shall be tied off to a stable structural item.</li> <li>▶ Workers will climb ladders with 2 hands. Equipment should be raised and lowered separately using ropes or baskets.</li> <li>▶ Workers should not extend out beyond the side rails of the ladder (i.e., the "Belt Buckle Rule").</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
Cranes, hoists, backhoes and other elevated equipment	Accidental loss of load and overhead hazards; falling objects	<ul style="list-style-type: none"> <li>▶ Rigging and hoisting of the temporary structure shall be done in accordance with OSHA 1926.753 and Subpart CC, as applicable.</li> <li>▶ The swing radius of equipment will be barricaded at all times. Workers will not be permitted to stand or work under suspended loads or the swing radius of cranes.</li> <li>▶ A qualified rigger or Competent Person shall inspect rigging apparatus before use. This equipment includes but is not limited to control mechanisms, safety devices, hydraulic lines, hooks and latches and tire inflation. Damaged or defective equipment will be removed from service and replaced or repaired immediately.</li> <li>▶ Ensure that the throat hook closures are in place and fully closed.</li> <li>▶ Hoisting will be done only on level surfaces.</li> <li>▶ Only a qualified signal person will give signals to the operator.</li> <li>▶ Prior to lifting a load, the qualified signal person must verify that the areas is clear of personnel, or all others in the vicinity are aware of a load being lowered or lifted. Such personnel will be moved to a safe position away from the load.</li> <li>▶ No personnel are permitted to be transported on balls or hooks.</li> </ul>
	Lifting and winching operations - Cuts or amputations from pinch or nip points; snapping cables or slings while moving equipment.	<ul style="list-style-type: none"> <li>▶ Winches, cables, slings and equipment will be inspected by the competent person prior to each shift.</li> </ul>
Cleaning of steel to remove existing (epoxy) coating.	<p>Inhalation of potentially hazardous air contaminants from coating materials.</p> <p>Fire from use of methods to burn or clean with solvents.</p>	<ul style="list-style-type: none"> <li>▶ Coatings will be removed by mechanical means as much as possible prior to the use of heat or other chemical solvents. Material will be scraped from the surface using a stiff metal or plastic scraper.</li> <li>▶ A heat gun may be used to soften the epoxy (200°F), although only small areas of heating will be done at relatively low temperatures - i.e., no burning. Ensure adequate ventilation when heating epoxy.</li> <li>▶ Sand the surface to remove the remaining material and/or wipe light residue with alcohol or other safe solvent - keep away from heat, spark and open flame.</li> </ul>

Situation or Equipment	Potential Hazards	Prevention Measure(s)
<b>Proof Testing of Anchors</b>		
Cranes, hoists, backhoes and other elevated equipment	Accidental loss of load and overhead hazards; falling objects	<ul style="list-style-type: none"> <li>▶ Rigging and hoisting of the temporary structure shall be done in accordance with OSHA 1926.753 and Subpart CC, as applicable.</li> <li>▶ The swing radius of equipment will be barricaded at all times. Workers will not be permitted to stand or work under suspended loads or the swing radius of cranes.</li> <li>▶ A qualified rigger or Competent Person shall inspect rigging apparatus before use. This equipment includes but is not limited to control mechanisms, safety devices, hydraulic lines, hooks and latches and tire inflation. Damaged or defective equipment will be removed from service and replaced or repaired immediately.</li> <li>▶ Ensure that the throat hook closures are in place and fully closed.</li> <li>▶ Hoisting will be done only on level surfaces.</li> <li>▶ Only a qualified signal person will give signals to the operator.</li> <li>▶ Prior to lifting a load, the qualified signal person must verify that the areas is clear of personnel, or all others in the vicinity are aware of a load being lowered or lifted. Such personnel will be moved to a safe position away from the load.</li> <li>▶ No personnel are permitted to be transported on balls or hooks.</li> </ul>
	Lifting and winching operations - Cuts or amputations from pinch or nip points; snapping cables or slings while moving equipment.	<ul style="list-style-type: none"> <li>▶ Winches, cables, slings and equipment will be inspected by the competent person prior to each shift.</li> </ul>
Anchor testing	Abrupt loss of pressure or failure of tie rod resulting in impact injury.	<ul style="list-style-type: none"> <li>▶ Workers not involved in the testing process will remain at least 50' from anchor tests. Cones or caution tape will be used to delineate test areas.</li> <li>▶ The test operator will wear PPE consisting of hard hat, safety glasses under faceshield and high visibility vest. The operator will position him/herself a safe distance away.</li> <li>▶ The operator will continuously monitor test pressures so that they do not exceed test or equipment limits.</li> </ul>

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## 4 TRAINING REQUIREMENTS

### 4.1 HAZARDOUS WASTE OPERATIONS

#### 4.1.1 Initial / Pre-Assignment Training

All workers at the site will be trained according to the OSHA 10-hr Construction Safety standards or equivalent, at a minimum.

#### 4.1.2 Supervisor

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(8), individuals designated as Supervisors require an additional 8 hours of training. The term “Supervisor” shall include but not limited to the Project Manager, Project Engineers, Site Supervisor / Superintendent, and Health & Safety Officer. The HSO will maintain on-site documentation of 8-hr Supervisor training certificates for the above individuals.

#### 4.1.3 Specialized Annual Training

In addition to the above, each worker will verify that refresher training has been received within the required time-frames for the following OSHA topics, as applicable to the work they are doing.

- bloodborne pathogens (1910.1030) - required annually when potentially exposed to human waste or bodily fluids, including first aid and rescue personnel
- occupational noise exposure (1910.95) - required annually for persons working near heavy equipment for extended periods
- lockout-tagout (1910.147) - for persons servicing or maintaining equipment where shutdown is necessary to prevent exposure to hazardous energy sources
- welding, cutting and brazing (1910.252), oxygen-fuel gas welding & cutting (1910.253), and/or arc welding (1910.254) - for persons performing welding, cutting or brazing of metal

### 4.2 COMPETENT PERSON

Prior to operating heavy equipment, such as cranes and rigging equipment, a “competent person” must assess site conditions to verify safe conditions and determine actions in order to ensure worker safety. Per 29 CFR 1926.650, a *Competent Person* is an individual who either through training or experience is “capable of identifying existing and predictable hazards” associated with the excavation activities. Additionally, he or she will have authorization to take prompt corrective action to eliminate any hazards, including but not limited to shutting down operations.

A competent person will select, oversee and maintain chains, slings and hoisting equipment. Equipment inspections shall be documented at least monthly or more often as deemed necessary by the competent person for the selected pieces of equipment.

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### **4.3 INITIAL HEALTH & SAFETY BRIEFING**

The HSO shall conduct a site specific health and safety briefing for all employees of CEI, its subcontractor(s), visitors, and governmental officials (e.g., city and state "inspectors"), who will perform work on site. The Health and Safety Briefing shall include, at a minimum, the following:

- The contents of this site specific Health and Safety Plan
- Names of personnel and alternates responsible for site health and safety
- Project roles & responsibilities
- OSHA training requirements
- Work practices by which the employee can use to minimize risks of safety and health regard
- Health and safety emergency procedures
- Reporting of fires, emergencies and first aid incidents
- Emergency and contingency procedures

### **4.4 TAILGATE SAFETY MEETINGS**

Site pre-entry Field Safety Meetings, also called "Tailgate Safety Meetings", will be presented to all site personnel each morning just prior to the onset of work activities. It will be the responsibility of the HSO and/or Site Supervisor / Superintendent to conduct these meetings. All Tailgate Safety Meetings are mandatory for all project personnel. At the conclusion of the meeting, each individual will be required to sign the Tailgate Safety Meeting Attendance Log or an equivalent.

The HSO and Site Supervisor / Superintendent will determine the topics each morning based on activities to be conducted that day and any incidents or items identified during previous days. These topics shall include, but are not limited to, heat stress, PPE requirements, chemical hazards, physical hazards, emergency procedures, and injury or incident analysis, and any other special considerations.



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## 5 PERSONAL PROTECTIVE EQUIPMENT

This section describes the general requirements of the EPA designated Levels of Protection (A-D), and the specific levels of protection required for each task at the site. The following subsections define the specific personal protective equipment requirements and the individual skin protection materials required for this particular site. A hazard assessment in accordance with 29 CFR 1910.132(d) was performed in order to determine exact requirements.

### 5.1 INITIAL LEVELS OF PERSONAL PROTECTION

Job Task	Initial Level of Protection
Welding, burning, cutting or heating of epoxy coatings.	Level C with welding helmet and respiratory protection.
Heavy equipment operators	Level D
All other work tasks	Level D

#### 5.1.1 Reassessment of Personal Protection

The level of protection provided by PPE selection shall be upgraded or downgraded based upon a change in site conditions or findings of investigation. The reevaluation process will be on-going during the project. The HSO will have discretion to modify ensembles as his/her observations dictate with consultation of the CIH.

When a significant change occurs in the process or tasks performed, the hazards and PPE will be reassessed. Some indicators of the need for reassessment are:

- Commencement of a new work phase, such as the start of work that begins on a different portion of the site.
- Change in job tasks during a work phase.
- Change of season/weather or ambient temperature.
- When temperature extremes or individual medical considerations limit the effectiveness of PPE.
- Contaminants other than those previously identified are encountered.
- Capacity of personnel to work in PPE

Before the workers actually begin work in their PPE ensembles, the anticipated duration of the work mission will be established. This will be determined at the daily tailgate safety briefing. Situations which may limit mission length, include:

- Weather conditions
- Job tasks
- PPE permeation rates
- Respirator end of service life

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### 5.1.2 Anticipated Project PPE Upgrades

In general, workers will utilize level D protection. However, workers doing extended periods of welding, cutting, brazing or heating of metals will wear Level C to guard against inhalation of hazardous metals and decomposition products of epoxy coatings.

Based upon the previous sampling information supplied, no work in levels B or A is anticipated.

## 5.2 DESCRIPTION OF LEVELS OF PROTECTION

The specific levels of protection and necessary components for each have been divided into four categories in conformance with U.S. EPA guidelines according to the degrees of protection afforded:

- Level A:** Should be worn when the maximum level of respiratory, skin, and eye protection is needed. Level A requires the use of a SCBA with a fully-encapsulated gas-tight, vapor-tight chemical protective suit.
- Level B:** Should be worn when the highest level of respiratory protection, but a lesser level of skin protection is needed.
- Level C:** Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.
- Level D:** Level D provides minimal protection against chemical hazards. It is normally worn only as a work uniform and not in any area with significant respiratory or skin contact hazards. Level D Modified should be worn when respiratory protection is not warranted but dermal protection is necessary.

Modifications of these levels are permitted and routinely employed during site work activities to maximize efficiency. Likewise the type of chemical protective ensemble will depend upon contaminants, concentration and extent of contact.

The Level of Protection selected is based upon the following:

- Type and measured concentration of the chemical substance in the ambient atmosphere as well as its toxicity.
- Potential for exposure to substances in air, splashes of liquids, or other direct contact with material due to work executed.
- Knowledge of chemicals on-site along with properties such as toxicity, route of exposure and contaminant matrix.
- Understanding of chemical, physical and biological hazards that may be encountered.

PPE Type	Level D	Level C
Eye	Safety glasses with side shields or goggles	Shaded welding helmet

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PPE Type	Level D	Level C
Gloves	Cotton or leather work gloves, as needed for work	Outer cotton or leather welding gloves
Clothing	Work clothing High visibility reflective traffic warning vest	Work clothing leather welding jacket or apron.
Respiratory	None	Air-purifying respirator with NIOSH-approved cartridges under or built into welding helmet.
Footwear	Safety work boots	Safety work boots
Head Protection	Hard hat	Hard hat
Other (as needed)	Hearing protection Fall protection	Hearing protection Fall protection

The HSO shall ensure that each worker who is exposed to the hazards of flames (hot work) or electric arcs should not wear clothing that, when exposed to flames or electric arcs, could increase the extent of injury that would be sustained by the employee. Flame retardant/resistant clothing shall be designed and maintained in accordance with ASTM 1506 or NFPA 1975 requirements. Clothing made from the following types of fabrics, either alone or in blends, are prohibited: acetate, nylon, polyester, rayon.

## 5.3 STANDARD OPERATING PROCEDURES FOR PERSONAL PROTECTIVE CLOTHING

### 5.3.1 Inspection

Proper inspection of PPE features several sequences of inspection depending upon specific articles of PPE and its frequency of use. The different levels of inspection are as follows:

- ▶ Inspection and operational testing of equipment received from the factory or distributor.
- ▶ Inspection of equipment as it is issued to workers.
- ▶ Inspection before each use
- ▶ Inspection after use or training and prior to maintenance.
- ▶ Periodic inspection of stored equipment.
- ▶ Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The following inspection list for PPE will be in use and should be implemented prior to immediate use and conducted by the user. This ensures that the specific device or article has been checked out by the user and that the user is familiar with its use.

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## 5.4 HEARING CONSERVATION

Workers exposed to high noise levels are required to wear hearing protection. High noise levels are considered sound levels over 90 dBA on an 8-hour time-weighted average basis. These noise levels shall be factored down for work shifts greater than 8 hours. Hearing protection is advised whenever it is necessary to raise your voice to be heard above the noise source.

In general, the following workers are required to wear hearing protection at all times:

- ▶ generator operation or testing while in operation
- ▶ working around heavy equipment - e.g., front end loaders, dump trucks, generators, cranes, bulldozers, water trucks, vac trucks, drill rigs

The HSO may upgrade or downgrade hearing protection requirements based on the taking of actual noise measurements, and considering of the proximity of workers to the noise source(s).

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## **6 RESPIRATORY PROTECTION**

When workers are required to wear respirators they will be trained in compliance with 29 CFR 1910.134, on their proper use, care, limitations, maintenance, fitting, etc. of respirators. All employers, including subcontractor employers, will provide their own respiratory protection and filter cartridges.

### **6.1 AIR PURIFYING RESPIRATORS (APR)**

If used, air-purifying respirators shall consist of those pieces of respiratory protection specified under or as part of a welding helmet. Typically this will consist of a half cartridge respirator fitted with the appropriate filter cartridge.

#### **6.1.1 Cartridge Change-out Frequency**

P-100 cartridges or filters used for welding will be replaced at least every 30 days.

#### **6.1.2 Daily Cleaning Procedure**

Each user of a respirator is responsible for cleaning, maintaining and inspecting his/her own respiratory protective devices. The steps to be followed for cleaning and disinfecting daily are as follows:

1. Respirator Disassembly - Respirators are taken to a clean location where the filters, cartridges or canisters are removed. For a thorough cleaning, inhalation and exhalation valves, speaking diaphragm and any hoses are to be removed.
2. Cleaning - In most instances the appropriate cleaning and disinfecting solution provided by the manufacturer is used and is dissolved in warm water in an appropriate tub. Using gloves, the respirator is placed in the tub and swirled for a few moments. A soft brush may be used to facilitate cleaning.
3. Rinsing - The cleaned and disinfected respirators are rinsed thoroughly in water to remove all traces of detergent and disinfectant.
4. Drying - The respirators may be allowed to air dry in the room on a clean surface. They may also be hung upside down, but care must be taken not to damage or distort the face pieces.
5. Re-assembly and Inspection - The clean, dry respirator face-piece should be re-assembled and inspected in an area separate from the disassembly area to avoid contamination. Special emphasis should be given to inspecting the respirators for detergent or soap residue left by inadequate rinsing. This problem appears most often under the seat of the exhalation valve and can cause valve leakage or sticking.

#### **6.1.3 Inspection & Checkout**

1. Each respirator user will visually inspect the entire APR unit for any obvious damages, defects or deteriorated rubber.
2. Make sure that the face-piece harness is not damaged. The serrated portion of the harness can fragment which will prevent proper face seal adjustment.

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3. Inspect lens for damage and proper seal in face-piece.
  4. Exhalation Valve - pull off plastic cover and check valve for debris or for tears in the neoprene valve (which could cause leakage).
  5. Inhalation Valves (two) - screw off cartridges/canisters and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place.
  6. Make sure a protective cover lens is attached to the lens.
  7. Make sure the speaking diaphragm retainer ring is hand tight.
  8. Make sure that you have the correct cartridge.
  9. Don respirator and perform negative and positive pressure test.

#### Storage of Air Purifying Respirators

OSHA requires that respirators be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, and mechanical damage.

Storage of respirators should be in a clean, secure area which minimizes the chance for contamination or unsanitary conditions. APR's will be stored in a secure area.

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## 7 MEDICAL SURVEILLANCE REQUIREMENTS

Medical monitoring programs are designed to track the medical condition of all personnel on a regular basis in addition to identifying medical conditions that may put site personnel at increased risk. All personnel that have the potential to wear respiratory protection will provide proof that they are *fit-for-duty* and cleared to wear the required respiratory protection at a minimum.

### 7.1 BASELINE & PRE-ASSIGNMENT MEDICAL MONITORING

The NIOSH/OSHA/USCG/EPA's *Occupational Safety and Health Guidance Manual* recommends the minimum medical monitoring requirements for work at the site, as follows:

Component	Minimum Medical Monitoring	Frequency
Respiratory Protection usage	<ul style="list-style-type: none"><li>►Completion of OSHA Respiratory Protection Questionnaire and review by a physician or licensed health care professional (PLHCP)</li><li>►Physical Examination and Pulmonary Function testing (as deemed necessary by the PLHCP).</li><li>►Respirator fit test</li></ul>	Fit Testing at least annually.

The physical will provide written clearance by a qualified physician that personnel are *fit-for-duty* and *able to wear respiratory protection*, as appropriate. Only those employees determined by a physical within the past 12 months as *fit-for-duty* and *able to wear respiratory protection* will be allowed to wear respirators.

### 7.2 ACCIDENT & ILLNESS REPORTS

CEI will notify the site owner or representative of all on-site “significant incidents”, including the time of occurrence, in writing within one business day. “Significant Incidents” include fatalities, OSHA Recordable injuries, unexpected release of any product or chemical, interruption of any utility service, fire, explosion or property damage, motor vehicle accident, or any other incident that may appear in news media. Verbal notifications should be provided to the site owner/operator as soon as the situation is under control and immediate safety concerns have been addressed.

### 7.3 HEAT STRESS EVALUATION

Temperatures inside protective equipment can be as much as 25% over external ambient temperatures with humidity near 100%. Excessive temperatures and loss of body fluids can result in a range of health conditions ranging from heat rash, cramps, exhaustion, heat stroke and possibly death.

Prior to the start of work, the HSO will assess all work site occupations and tasks in order to determine the

level of work demand and document this assessment. The HSO will make this assessment using the chart below as a guide.

The general steps to perform heat stress evaluations are given below. Each step is described in more detail in subsequent subsections:

- 1) Determine the level of work demand effort for each job task (Section 7.3).
- 2) When temperatures are or may be over 80°F during the day, periodically calculate the WBGT “heat index” throughout the day at regular intervals and compare to action levels for each work demand category (Section 7.3.1).
- 3) Perform periodic heat stress monitoring on workers using either tympanic measurements and/or pulse rate measurements when the WBGT exceeds Heat Stress Action Levels (Section 7.3.2). Compare to heat stress monitoring results to medical guidelines.
- 4) Institute heat stress management controls when monitoring parameters exceed guidelines for core body temperature or pulse rate (Section 7.3.4).

### Screening Criteria for Work Demand Category

Categories	Example Activities	Assigned Trades & Tasks
<b>Resting</b>	<ul style="list-style-type: none"> <li>•Sitting quietly</li> <li>•Sitting with moderate arm movements</li> </ul>	
<b>Light</b>	<ul style="list-style-type: none"> <li>•Sitting with moderate arm and leg movements</li> <li>•Standing with light work at machine or bench while using mostly arms</li> <li>•Using a table saw</li> <li>•Standing with light or moderate work at machine or bench and some walking about</li> </ul>	<ul style="list-style-type: none"> <li>•Laborer - decontaminate trucks &amp; equipment</li> <li>•Laborer - directing trucks</li> <li>•Laborer - setting up fence</li> <li>•Laborer - dust control</li> <li>•Laborer - water treatment</li> <li>•Equipment operators</li> <li>•Burning, welding, cutting</li> <li>•Health &amp; Safety Officer</li> <li>•Project Manager &amp; Site Supervisor / Superintendent</li> <li>•Mechanic - various task</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>•Scrubbing at a standing position</li> <li>•Walking about with moderate lifting or pushing</li> <li>•Walking on a level at 6 Km/hr while carrying 3 Kg weight load</li> </ul>	<ul style="list-style-type: none"> <li>•Laborer - setting up pumps &amp; hoses</li> <li>•Timber lagging installation</li> <li>•Sheet pile installation</li> <li>•Laborer - fence post driving</li> </ul>
<b>Heavy</b>	<ul style="list-style-type: none"> <li>•Carpenter sawing by hand</li> <li>•Shoveling dry sand</li> <li>•Heavy assembly work on a noncontinuous basis</li> <li>•Intermittent heavy lifting with pushing or pulling (e.g., pick-and-shovel work)</li> </ul>	<ul style="list-style-type: none"> <li>•Laborer - digging dry soil</li> <li>•Laborer - tree cutting</li> </ul>
<b>Very Heavy</b>	<ul style="list-style-type: none"> <li>•Shoveling wet sand</li> </ul>	<ul style="list-style-type: none"> <li>•Laborer - digging wet soil</li> </ul>



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### 7.3.1 Heat Stress Action Levels

Wet Bulb, Globe Temperature (WBGT) will be monitored and logged at a minimum of three times a day when daily high temperatures are expected to exceed 80°F. Additionally, when the WBGT temperature is expected to exceed this threshold, baseline tympanic temperature levels will be logged for all workers prior to the commencement of work. Finally, above 80°F, shelter or shaded areas should be provided and daily safety briefings should include awareness items for heat stress.

$$\text{WBGT} = 0.7 \cdot \text{WB} + 0.2 \cdot \text{GT} + 0.1 \cdot \text{DB}$$

WB= wet bulb temperature, GT=globe temperature, DB=dry bulb temperature

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## Screening Criteria for Heat Stress Exposure

Work Demands	ACTION LEVEL*	ACTION
Light	WBGT $\geq 85$ °F	<ul style="list-style-type: none"><li>• Tympanic Temperatures monitored at least every 2 hours</li></ul>
Moderate	WBGT $\geq 82$ °F	<ul style="list-style-type: none"><li>• Tympanic Temperatures monitored at least every 1.5 hours</li></ul>
Heavy	WBGT $\geq 79$ °F	<ul style="list-style-type: none"><li>• Tympanic Temperatures monitored at least every 1 hour</li></ul>
Very Heavy	WBGT $\geq 77$ °F	<ul style="list-style-type: none"><li>• Tympanic Temperatures monitored at least every ½ hour</li></ul>
Any work utilizing Level C or B chemical resistant clothing	ambient $\geq 69.8$ °F	<ul style="list-style-type: none"><li>• Tympanic Temperatures monitored at least every 1 hour</li></ul>

\*Note: The Action Levels in this table assume the most conservative 100% acclimatized work demand with no rest periods. Consult ACGIH Heat Stress Table (2012 TLV booklet) for other work/rest regiments.

### 7.3.2 Heat Stress Monitoring

Three methods of monitoring for heat stress may normally be used when WBGT temperatures exceed screening criteria action levels for each work demand category: core body temperature, heart rate, or body water loss. For this project, Core Body Temperatures monitored by tympanic (i.e., through the ear canal) temperature measurement will be the primary method. Procedures for heart (pulse) rate heat stress monitoring has been given as an alternative method in the event body temperature measuring equipment is out of service or otherwise unavailable.

At a minimum, the HSO (or his designee) will take tympanic temperature measurements to measure body temperature whenever the heat stress action levels above are exceeded. Baseline body temperatures should be measured at the beginning of the work day and recorded in a log for each worker. Thereafter, body temperatures will be measured as soon as possible after the person has exited the work zone at the frequencies identified in the above table. Body temperatures should not exceed 100.4°F, or 1.5 °F over the baseline measurement. No person should be allowed to return to work until within 0.5 degrees of the baseline measurement.

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### 7.3.3 Alternative/Optional Heat Stress Measurement Procedures

The following procedures for pulse/heart rate monitoring shall be used if core body temperature measurement equipment is out of service or otherwise unavailable. Additionally, pulse rates may be monitored if conditions warrant at the discretion of the HSO.

Pulse or heart rate is the best indicator of overall stress being applied to the body. The most widely accepted pulse measurement and evaluation method is known as the “*Age Adjusted Maximum Heart Rate*” (AAMHR). The AAMHR is considered to be the maximum heart rate which an individual can maintain for extended periods without damaging heart muscles. However, this limit may be lower for individuals with pre-existing medical conditions.

$$\text{AAMHR} = 180 - \text{Age}$$

Each individual's pulse rate should be measured at the beginning of the work shift if conditions warrant. This starting pulse rate, the person's age and AAMHR will be recorded on a log sheet. Each person's pulse rate will be re-measured upon exiting the work zone. If the pulse rate exceeds the AAMHR, the individual will be restricted from additional work activities until the pulse rate returns to within 5% of normal and less than 90 beats per minute.

#### Summary of Heat Stress Measurement Guidelines

Vital Sign	Worker Removal Point	Return to Work Point
Body Temperature	> 100.4 °F or >1.5 °F over baseline	≤0.5 °F of normal / baseline
Pulse Rate	>AAMHR or >110 beats per min. at rest	< 90 beats per min. and <105% of baseline

### 7.3.4 Heat Stress Management

WBGT and indicators of heat strain will be monitored per the above tables. When necessary the general controls will be used to control heat stress.

- Workers will be given verbal instructions and reminders during Tailgate Safety Meetings.
- The drinking of water in small volumes (about 1 cup every 20 minutes) throughout the day will be encouraged.
- Worker will be allowed to self-limit their exposures if they detect signs and symptoms of heat strain in themselves or others.
- Individuals taking medications which may put them at greater risk, such as for blood pressure, cardiovascular medication, body temperature regulation, renal or sweat gland functions, and those who abuse or are recovering from alcoholism, will be counseled on

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- the dangers. A healthy lifestyle will be encouraged.
  - Individuals returning to work after an extended absence from hot exposure will be encouraged to consume salty foods.
  - The HSO, in consultation with the CIH, will consider the use of engineering controls (e.g., air movement, erection of shaded shelter, etc.), administrative controls (e.g., adjusted rest periods, personnel rotation, etc.) and modification of PPE as appropriate. Any decisions regarding the use or non-use of specific controls will be documented in the HSO's logbook.

## **7.4 COLD STRESS**

Personnel working in extreme cold, even for a short time, may experience severe injury to the surface of the body (frostbite), or profound generalized cooling (hypothermia). Frostbite usually occurs to parts of the body having high surface-to-volume ratios, such as fingers, toes, ears and nose. Incipient frostbite is characterized by a blanching or whitening of the skin. Superficial frostbite is characterized by skin with a waxy or white appearance that is firm to the touch, but the skin underneath is resilient. Deep frostbite is characterized by cold, pale skin that is solid to the touch.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms include shivering, apathy, listlessness, sleepiness, unconsciousness, freezing of the extremities, and even death.

The extent of frostbite and hypothermia are influenced greatly by wind speed/wind chill and wetness of the skin. Thus the body can cool rapidly when chemical protective equipment is removed and the clothing underneath is soaked with perspiration. Workers experiencing signs of hypothermia should be immediately removed from the environment, placed in a warm location, covered with dry blankets and provided with warm liquids. Wet clothing should be removed and replaced with dry clothing and outerwear.

### **7.4.1 Cold Stress Monitoring**

The HSO will periodically measure air temperature and wind velocity when temperatures fall below 10 °F. Results will be compared to the Work/Warm-Up Schedule found in Section 7.4.2. The appropriate work/rest schedules will be determined by the HSO, in consultation with the Site Supervisor / Superintendent and CIH, based on these measurements. Decisions regarding work/rest schedules will be documented in the HSO's daily logbook.

### **7.4.2 Cold Stress Work/Warmup Schedule for 4-hour Shift**

The following work/warmup schedule will be used when working in cold temperatures for prolonged (i.e., as least 4 hour) periods.

### Work/Warm-up Schedule for 4-hr Shift

Air Temp (°F) Sunny Day	No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks
-15 to -19	normal	1	normal	1	75 min	2	55 min	3	40 min	4
-20 to -24	normal	1	75 min	2	55 min	3	40 min	4	30 min	5
-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	stop work ↓	
-30 to -34	55 min	3	40 min	4	30 min	5	stop work ↓↓ ↓			
-35 to -39	40 min	4	30 min	5	stop work ↓					
-40 to -44	30 min	5	stop work ↓							
< -45	stop work									

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## **8 AIR MONITORING PROGRAM**

No air monitoring will be conducted on this project because the site is believed to be free of exposure to hazardous chemical contaminants.

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## 9 SITE CONTROL MEASURES

The following section defines measures and procedures for maintaining site control. Site control is an essential component in the implementation of the site health and safety program. In addition to the following all personnel are required to sign in and out at the job site office trailer. A log for this purpose will be maintained with entries for date, name of visitor, company, purpose for entry to site, time in, and time out. Whenever visitor or non-project personnel leave the site, they must sign out.

### 9.1 BUDDY SYSTEM

During work activities, implementation of a buddy system is mandatory. A buddy system requires at least two people who work as a team, each looking out for each other, via voice or visual contact.

### 9.2 SITE COMMUNICATIONS

Successful communications between field teams and personnel in the support zone is essential. The following communications systems may be available during activities at the site.

1. Two way radios
2. Intrinsically safe radio (in potential explosive atmospheres)
3. Air horns
4. Hand Signals
5. Cellular phone or hardwired phone for emergencies only.

#### 9.2.1 Air Horn Alerts

Signal	Definition
One long blast	Attention
Two long Blasts	Leave when possible
Three long Blasts	Leave area IMMEDIATELY (EMERGENCY Situation)
Repeated Short Blasts	Send Backup Support

#### 9.2.2 Hand Signals

Signal	Definition
Hands clutching throat	Out of air - Cannot breathe

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Signal	Definition
Hands on top of head	Need Assistance
Thumbs Up	OK
Thumbs Down	No
Arms waving upright	Trouble - Send backup support
Grip partner's wrist	Exit area immediately

### 9.3 SITE SECURITY

All work areas will be secured during off-hours throughout the course of the project. During the course of work all contractor employees and visitors will sign in and out of a logbook maintained by the HSO.



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## **10 EMERGENCY PROCEDURES**

This section describes contingencies and emergency planning procedures to be implemented at the site. This plan should be coordinated with the local authorities disaster and emergency management plans as appropriate. In addition, meetings or other communication with the local hospital, rescue squad, hazardous materials unit and fire department will occur so as to advise the emergency response representatives of the nature and type of contaminants victims may have been exposed to while on site. Directions to the hospital will be posted on site when this HASP is in effect. Emergency procedures will be posted and covered in daily site briefings.

### **10.1 PRE-EMERGENCY PLANNING**

The Site Supervisor / Superintendent will ensure that the appropriate lines of communications have been established with local hospitals, government agencies and other emergency response organizations prior to site activities. During the site briefings held periodically/daily, all employees will be trained in and reminded of provisions of the emergency response plan, communication systems, and evacuation routes.

### **10.2 EMERGENCY EQUIPMENT & FACILITIES**

The following emergency equipment will be available at all times:

- First aid kit
- Fire extinguishers near areas of welding and torch burning, outside flammable liquid storage areas, and near the entrance to the Exclusion Zone
- Portable eye wash near any areas of chemical use or splashing
- Emergency shower, potable water garden hose, or pressurized sprayer
- Mobile phone and/or two-way radio
- Oil absorbing spill pads and booms

Generally emergency equipment will be stored in the support zone.

### **10.3 PERSONNEL ROLES AND LINES OF AUTHORITY**

The Site Supervisor / Superintendent / HSO has primary responsibility for responding to and correcting emergency situations. This includes taking appropriate measure to ensure the safety of site personnel and the public. Possible actions may involve evacuation of adjacent personnel. Additionally, they are responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow up reports completed.

### **10.4 EVACUATION PROCEDURES**

If anyone discovers a fire, chemical spill or release, or other process upset necessitating emergency action, he or she will immediately notify the Site Supervisor / Superintendent or HSO. An immediate decision will be made as to whether to evacuate the site or other actions to be taken. The HSO is

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primarily responsible for this decision.

The primary response to any emergency will be to protect the health and safety of employees, contractors and visitors on-site, as well as the community and environment. Steps will be taken to *identify, contain, treat, and properly dispose* of the materials involved as a secondary response. The HSO will maintain on file the North American/DOT 2012 Emergency Response Guidebook information and relevant health and safety data relating to the identified substances on the site.

In the event of an emergency which necessitates an evacuation of the site, the following alarm procedures will be implemented:

#### Alerting System

- On site - Utilize air horns or radios as appropriate. Contact 911, alert office personnel to wait at site entrance to direct emergency response units to emergency
- Outside of the remediation areas - Contact 911

When notified to evacuate, all personnel will be expected to proceed to the closest site exit with their buddy, and mobilize to the predetermined safe distance area associated with the evacuation route. Personnel will remain at that area until the re-entry alarm is sounded or an authorized individual provides further instructions. Air horns will be located in the work area near the supervisor's office.

In general, employees should proceed to a designated meeting location that is upwind and uphill from the site or location of the incident, unless otherwise instructed by supervisory personnel. Wind socks and/or flagging will be employed on-site to indicate the upwind direction to which evacuation should proceed.

### **10.4.1 Emergency Contacts & Notification Systems**

The following tables provide names and telephone numbers for emergency contact personnel and key project contacts. It will be posted in the Site Supervisor / Superintendent's / HSO's office, or on vehicles when no offices are available. In the event of a medical emergency, personnel will take direction from the HSO and notify the appropriate emergency organization. In the event of a fire or spill, the Site Supervisor / Superintendent will immediately notify Environ and ensure that the appropriate local, state, and federal agencies are notified. Prior to posting, the Site Supervisor / Superintendent / HSO shall confirm the appropriate contact names and phone numbers are listed .

## EMERGENCY CONTACT LIST

Organization / Responsibility	Specific Contact or Location	Telephone
<b>Government / Emergency Response Organizations</b>		
Local Rescue Squad / Ambulance		911
Local Police	Philadelphia Police Dept. 8501 State St, Phila, PA 19136	911 or 215-685-8126
Local Fire	Philadelphia County Fire Dept. 5200 Pennypack Rd, Phila, PA 19136	911 or 215-685-8971
Local HazMat / Chemical Spills		911
Hospital - Primary for trauma center	Jeannes Hospital 7600 Central Ave, Phila, PA 19111	215-728-2000
Poison Control Center		800-962-1253
National Response Center		800-424-8802
Centers for Disease Control		404-488-4100
CHEMTREC		800-424-9300
NJ DEP		877-WARNDEP (877-927-6337)
U.S. Coast Guard		800-424-8802
U.S. EPA	2890 Woodbridge Ave. Edison, NJ 08837	732-321-6754
<b>Project Emergency Contacts</b>		
Project Manager	Gary Kowalski	office: 201-215-9628 cell: 201-376-7153
Site Supervisor / Health & Safety Officer	John Castellani	office: 201-215-9626 cell: 201-522-5089
Project CIH	Bob Kretvix	office: 908-237-9348 cell: 908-397-7506
Environ, Senior Manager	Nicholas Steenhaut	617-946-6109

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## **10.5 DIRECTIONS TO HOSPITAL**

A map with directions to the nearest hospital is displayed at the end of this section. The HSO will drive the hospital route before field activities begin to verify that the route is acceptable and unobstructed by other construction activities.

## **10.6 FIRE & EXPLOSION PROCEDURES**

In the event of a fire or explosion, the local Fire Department should be summoned immediately. Upon their arrival, the Site Supervisor / Superintendent or designated alternate will advise the Fire Chief / Incident Commander of the location, nature, and identification of the hazardous materials on-site.

If it is safe to do so; site personnel may:

1. Use fire fighting equipment available on site to control or extinguish the fire; and
2. Remove or isolate flammable or other hazardous materials which may contribute to the fire.

## **10.7 SPILL & LEAK PROCEDURES**

In the event of a spill or leak, that may enter any sanitary sewerage pipeline, storm sewer, surface water, soil or other offsite conveyance, site personnel will:

1. Inform supervisor immediately.
2. Terminate work activities (at the discretion of the HSO).
3. Prevent entry into any waterways using defensive means when safe to do so.
4. Follow site emergency notification and evacuation procedures, when necessary.
5. Locate the source of the spillage and stop the flow if it can be done safely.
6. Begin containment and recovery of the spilled materials if it can be done safely.

If the spill or release is expected to pose significant hazards or is beyond the capabilities of the immediate personnel, then the HSO will be contacted immediately. When contacted, the HSO will obtain and assess the following information:

1. the material spilled or released
2. location of the release or spill
3. an estimate of the quantity released and the rate at which it is being released
4. any injuries involved
5. fire and/or explosion or possibility of these events occurring

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6. the area and materials involved in the location of the fire or explosion

In the event of a chemical spill that is not contained within a dike or bermed area, an area of isolation will be established around the spill. The size of the area will generally be dependent on the size of the spill and the material(s) involved. When any spill occurs, only those persons involved in the oversight or performance of the emergency cleanup operations will be allowed within the designated hazard area. If possible, this area will be roped or otherwise blocked off.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and possibly evacuated from the area. The Site Supervisor / Superintendent will inform the proper agencies in the event that this is necessary.

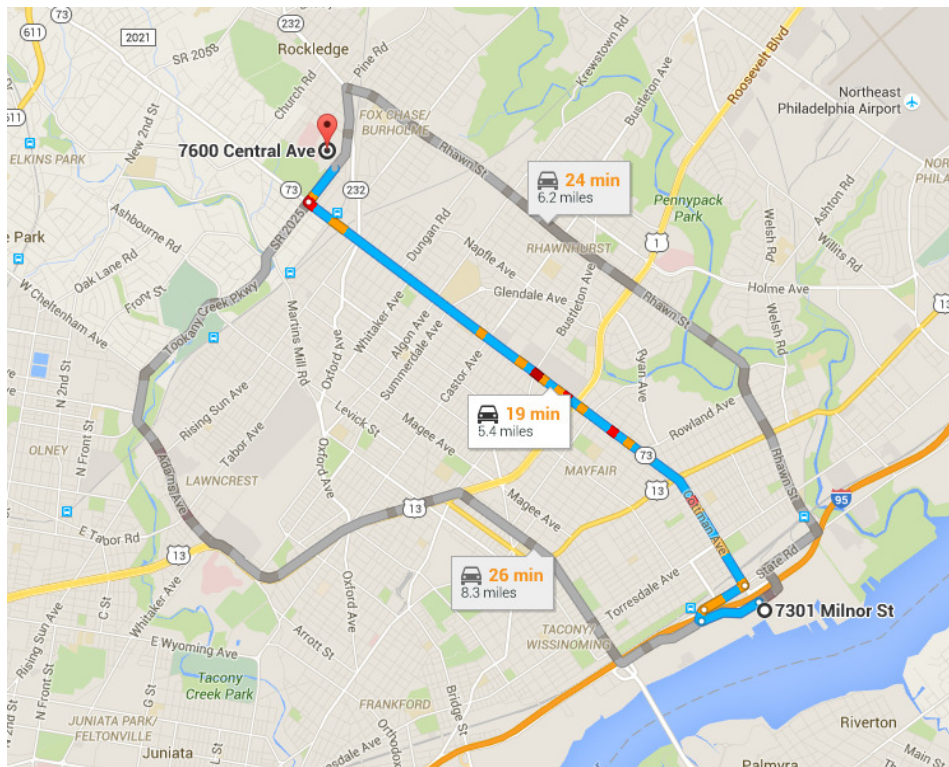
If the control and cleanup of the spill or release is within the capabilities of on-site personnel and the release does not migrate beyond the perimeter of the site the Site Supervisor / Superintendent will determine reporting requirements. Reporting of spills or releases in accordance with other federal, state and local regulations is also the responsibility of the Site Supervisor / Superintendent.

## **10.8 INCIDENT FOLLOW-UP AND CRITIQUE**

Following all emergency response actions and activation of this plan, the Site Supervisor / Superintendent will conduct a debriefing session of all key personnel involved. The response will be critiqued, documented, and response plans revised, if necessary. Corrective actions will be listed where procedures were inadequate or need improvement. Responsible persons will be listed and held accountable for follow-up.

## Directions to Nearest Hospital

Jeannes Hospital  
7600 Central Ave  
Philadelphia, PA 19111  
215-728-2000



### 7301 Milnor St

Philadelphia, PA 19136

- ↑ Head southwest on Milnor St toward Cottman Ave  
0.4 mi
- Turn right onto New State Rd  
0.1 mi
- ↑ Continue onto State Rd  
0.3 mi
- ⬅ Turn left onto Cottman Ave  
4.2 mi
- Turn right onto Central Ave  
Destination will be on the left  
0.3 mi

### 7600 Central Ave

Philadelphia, PA 19111

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## 11 ILLUMINATION & SANITATION

### 11.1 ILLUMINATION

Site operations will cease in time to permit personnel to safely exit the site under well-lighted conditions. Conversely, operations will not begin until lighting is adequate at dawn. If work schedules require work outside of these parameters then portable light systems with sufficient illumination to provide adequate lighting will be provided. (Headlights from vehicles and equipment generally do not provide sufficient illumination to conduct work safely.)

The following are the minimum illumination intensities required by OSHA 1926.56 for various work tasks:

<u>Min. Light Intensity (foot-candles)</u>	<u>Task or Operation</u>
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling and field maintenance areas.
5	<ul style="list-style-type: none"><li>• General construction area lighting</li><li>• Indoors: warehouses, corridors, hallways and exits</li><li>• Tunnels, shafts and general underground work areas</li></ul>
10	<ul style="list-style-type: none"><li>• Tunnel and shaft heading during drilling, mucking and scaling when tunnel is manned.</li><li>• General construction plant and shops (batch plants, screening plants, mechanical and electrical rooms, carpenter shops, rigging lofts and active store rooms, mess halls, and indoor toilets and workrooms.</li></ul>
30	First aid stations, infirmaries and offices

### 12.2 SANITATION

Permanent facilities or portable restrooms of sufficient types and numbers to meet the requirements of 29 CFR 1910.120(n) will be provided. Potable water will be provided for workers at the site. Hand and face wash, as well as respirator sanitizing supplies, will be available on site in sufficient quantities for all employees.

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When certain substances regulated by OSHA are present, such as lead, cadmium or asbestos, are present, handwashing, showering and clean change areas for personal clothing shall be provided, as required.

### **12.3 HOUSEKEEPING**

To minimize potential accidents, the site will be maintained in a generally clean condition. Waste personal materials, such as used PPE, paper towels, and respirator cartridges, etc. will be disposed of in waste containers.

The site will be set up so as to be reasonably free from significant safety hazards. Wires and hoses will be positioned so they do not obstruct or present a safety hazard in walkways and evacuation routes. Staged equipment and materials from the work area will be positioned in the support area while not in use until cleaned for removal from the site.



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**APPENDIX I**  
**STANDARD OPERATING PROCEDURES AND POLICIES**

## SECTION 17 - HAZARD COMMUNICATION PROGRAM

### Overview

It is the policy of Creamer Environmental, Inc. that the first consideration of work shall be the protection of the safety and health of all employees. The company has developed this Hazard Communication Program to ensure that all employees receive adequate information about the possible hazards of any hazardous substances used in the company's operations and processes. The following program outlines how we will accomplish this objective.

**Effective December 1, 2013 ALL employees must be trained on the new OSHA Hazard Communication Standard (HCS) called Globally Harmonized System of Classification and Labeling of Chemicals or GHS.**

Essentially, the new GHS program is a simpler and more universal way of identify hazardous materials. Some of the changes will be to pictograms and labels. Also, **Safety Data Sheets(SDS) will now be known as Safety Data Sheet (SDS).**

### **Major changes to the Hazard Communication Standard:**

- § **Hazard classification:** Chemical manufacturers and importers are required to determine the hazards of the chemicals they produce or import. Hazard classification under the new, updated standard provides specific criteria to address health and physical hazards as well as classification of chemical mixtures.
- § **Labels:** Chemical manufacturers and importers must provide a label that includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category.
- § **Safety Data Sheets:** The new format requires 16 specific sections, ensuring consistency in presentation of important protection information.

Some other modifications to terminology & key words: the term "**hazard determination**" has been changed to "**hazard classification**".

"**Signal word**" is a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on a product label.

The signal words used are "**danger**" and "**warning**." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

"**Hazard statement**" means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard - **Example: Fatal if swallowed (Acute Oral Toxicity)**

**“Precautionary statement”** means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling - ***Examples: Do not eat, drink, or smoke when using this product & Keep container tightly closed***

The statements assigned to a chemical address the following four areas:

- Prevention
- Response
- Storage
- Disposal

**Key dates:**

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015*	Comply with all modified provisions of this final rule, except:	Chemical manufacturers, importers, distributors and employers
December 1, 2015	Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.	
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both.	All chemical manufacturers, importers, distributors and employers

You may start seeing new labels after December 1, 2013.

The dates above allow for distributors & manufacturers to “transition” into the new standard.

As always, planning will be needed to ensure you have reviewed the SDS to address whatever PPE or other controls may be needed as well as First Aid.

**Superintendent's & Project Engineer's ALL have direct & immediate access to ALL SDS so continue to gather that information from them. Call your Super/PE when prior to using a chemical to secure this information.**

### **Hazard Communication Safety Data Sheets**

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDS) (formerly known as Safety Data Sheets or SDS) to communicate the hazards of hazardous chemical products. ***As of June 1, 2015, the HCS will require new SDS to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:***

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information\*

Section 13, Disposal considerations\*


Section 14, Transport information\*

Section 15, Regulatory information\*

Section 16, Other information, includes the date of preparation or last revision.

## **Hazard Communication Standard Labels**

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed

SAMPLE LABEL	
<b>PRODUCT IDENTIFIER</b> <b>CODE</b> _____ <b>Product Name</b> _____	<b>HAZARD PICTOGRAMS</b> 
<b>SUPPLIER IDENTIFICATION</b> <b>Company Name</b> _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	<b>SIGNAL WORD</b> <b>Danger</b> <b>HAZARD STATEMENT</b> <b>Highly flammable liquid and vapor.</b> <b>May cause liver and kidney damage.</b>
<b>PRECAUTIONARY STATEMENTS</b> Keep container tightly closed. Store in cool, well ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measure against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear Protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified. <b>In Case of Fire:</b> use dry chemical (BC) or Carbon dioxide (CO <sub>2</sub> ) fire extinguisher to extinguish. <b>First Aid</b> If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.	<b>SUPPLEMENTAL INFORMATION</b> <b>Directions for use</b> _____ _____ _____ Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

### **New Labeling System**

- Labels are the immediate source of information on a chemical
- New labels will have more information than current labels
- There may also be additional information (known as supplemental information) on the label that is not required—the required information should be presented together on the label
- Labels on hazardous chemicals will be changing by June 1, 2015















## Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

### HCS Pictograms and Hazards

<p style="text-align: center;"><b>Health Hazard</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Carcinogen</li> <li>§ Mutagenicity</li> <li>§ Reproductive Toxicity</li> <li>§ Respiratory Sensitizer</li> <li>§ Target Organ Toxicity</li> <li>§ Aspiration Toxicity</li> </ul>	<p style="text-align: center;"><b>Flame</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Flammables</li> <li>§ Pyrophorics</li> <li>§ Self-Heating</li> <li>§ Emits Flammable Gas</li> <li>§ Self-Reactives</li> <li>§ Organic Peroxides</li> </ul>	<p style="text-align: center;"><b>Exclamation Mark</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Irritant (skin and eye)</li> <li>§ Skin Sensitizer</li> <li>§ Acute Toxicity</li> <li>§ Narcotic Effects</li> <li>§ Respiratory Tract Irritant</li> <li>§ Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p style="text-align: center;"><b>Gas Cylinder</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Gases Under Pressure</li> </ul>	<p style="text-align: center;"><b>Corrosion</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Skin Corrosion/Burns</li> <li>§ Eye Damage</li> <li>§ Corrosive to Metals</li> </ul>	<p style="text-align: center;"><b>Exploding Bomb</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Explosives</li> <li>§ Self-Reactives</li> <li>§ Organic Peroxides</li> </ul>
<p style="text-align: center;"><b>Flame Over Circle</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Oxidizers</li> </ul>	<p style="text-align: center;"><b>Environment (Non-Mandatory)</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Aquatic Toxicity</li> </ul>	<p style="text-align: center;"><b>Skull and Crossbones</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>§ Acute Toxicity (fatal or toxic)</li> </ul>

## Examples of Transport “Labels”

 <ul style="list-style-type: none"> <li>• Flammable Gas</li> <li>• Flammable Aerosol</li> </ul>	 <ul style="list-style-type: none"> <li>• Flammable solids</li> <li>• Self-Reactive substances and mixtures</li> </ul>	 <ul style="list-style-type: none"> <li>• Pyrophoric solids</li> <li>• Pyrophoric liquids</li> <li>• Self-heating Substances and mixtures</li> </ul>
 <ul style="list-style-type: none"> <li>• Substances and mixtures, which in contact with water, emit flammable gases</li> </ul>	 <ul style="list-style-type: none"> <li>• Oxidizing gases</li> <li>• Oxidizing liquids</li> <li>• Oxidizing solids</li> </ul>	 <ul style="list-style-type: none"> <li>• Self reactive substances and mixtures (type B)</li> <li>• Organic peroxides</li> </ul>
 <ul style="list-style-type: none"> <li>• Explosives (Division 1.4)</li> </ul>	 <ul style="list-style-type: none"> <li>• Explosives (Division 1.5)</li> </ul>	 <ul style="list-style-type: none"> <li>• Explosives (Division 1.6)</li> </ul>
 <ul style="list-style-type: none"> <li>• Gases under pressure</li> </ul>	 <ul style="list-style-type: none"> <li>• Acute toxicity: Oral</li> <li>• Acute toxicity: Skin</li> <li>• Acute toxicity: Inhalation</li> </ul>	 <ul style="list-style-type: none"> <li>• Corrosive to metals</li> <li>• Skin corrosion/irritation</li> </ul>
 <ul style="list-style-type: none"> <li>• Aquatic toxicity (Acute)</li> <li>• Aquatic toxicity (Chronic)</li> </ul>	 <ul style="list-style-type: none"> <li>• Organic Peroxides</li> </ul>	

Our Hazard Communication Program has been developed to assure that our workers have a full understanding of the substances and hazards with which they work, and this program is available for review by all employees, their legal representatives, medical providers and governmental agencies in accordance with the Right to Know standards.

## Program Components

1. In accordance with the OSHA Hazard Communication Standard (29 CFR 1926.59) our Company, shall ensure that:
2. All employees are aware of the existence of the company's Hazard communication Plan and how to obtain a copy of it.
3. Employees will be fully informed of all of the hazardous materials that they are exposed to. This includes, but is not limited to, information given when:
  - a. Employees start a new job
  - b. Employees must perform non-routine tasks
  - c. Employees are exposed to NEW hazards
4. All hazardous materials are labeled
5. All hazardous materials are maintained on the List of Hazardous Chemicals.
6. All hazardous materials have a corresponding Material Safety Data Sheet, and that copies of all SDSs are available to employees.
7. Emergency procedures are to be established, and safety exercises shall be randomly performed.
8. All employees shall be guarded by both protective equipment and personal protective equipment to maintain the highest levels of safety.
9. All employees are to be properly trained and informed of all of the existing work place hazards. This includes not only the job site, but also storage facilities.
10. All employees will receive training for the provisions of the company's Hazard Communication Plan.
11. Any outside contractor(s) inform the job site supervisor of all hazardous materials brought on to the job site. In addition, all outside contractors will be informed of all of the hazardous materials that exist on our job site.
12. All work practices must conform with local, state, and federal governmental agencies. This includes the Community Right to Know Act and all of the requirements of the 1986 Superfund Amendments and Reauthorization Act (SARA).



## Allocation of Duties

The Hazard Communication Coordinator is responsible for implementing the program. Specific responsibilities within our Company's Hazard Communication Plan are as follows:

Employee Information & Training: -CONSTRUCTION SITES - Job Site Superintendent  
-SHOP AREAS - Shop Managers

Container Labeling: - CONSTRUCTION SITES - Job Site Superintendent  
- SHOP AREAS - Shop Managers

Safety Data Sheets: - CONSTRUCTION SITES - Job Site Superintendent  
- SHOP AREAS - Shop Managers

Chemical Inventory List(s): - Company Hazard Communication Coordinators

## Plan Administration and Using This Manual Effectively

In accordance with the OSHA Hazard Communication Standard (29 CFR 1926.59) all companies must have a written Hazard Communication Plan. This manual has been created to be the company's Written Hazard Communication Plan. This manual alone does not meet the requirements of the OSHA Standard. It is only after the information in this manual is put into everyday practice that there will be compliance with the OSHA Hazard Communication Standard.

To begin the Hazard Communication Program, we have appointed the Safety Superintendent or area Safety Superintendent to be the Company's Hazard Communication Coordinator (CHCC). He will be responsible for implementing all of the necessary programs contained in this manual.

This Hazard Communication program will be monitored to ensure that all facets of the program are carried out and that the program is effective.

Hazard Communication Coordinator shall be responsible for:

1. Establishing a group of people to assist him in implementing the programs. People shall be designated to collect/update Safety Data Sheets and to create/update Chemical Inventory Lists.
2. The CHCC must also place people in charge of setting up certain other programs, such as:
  - a. Creating/Affixing "In-House" Labeling
  - b. Employee Training Programs
  - c. Determining Emergency Procedures
  - d. Approving Emergency Procedures

3. It is very important that the Company Hazard Communications Coordinator understands all of the information that is contained in the manual along with the OSHA Hazard Communication Standard (29 CFR 1926.59).
4. After all of the programs have been initiated, the Hazard Communication Program must be reviewed/accepted by all of our management.
5. All must be trained/informed of the Company's Hazard Communication Program and informed of WHERE they can receive copies of anything and everything contained in this manual.
6. 6. Each job site must set up a Hazard Communication Center where the job site Supervisor keeps all hazardous materials information. This includes everything contained in this manual (Including the List of Hazardous Chemicals, SDS, and Emergency Procedures.)
7. Furthermore, this entire program will be reviewed on an annual basis to insure that everything in the Hazard Communication Program is correct and current.

### **C. EMPLOYEE INFORMATION AND TRAINING**

In accordance with the OSHA Hazard Communication Standard, all employees shall be informed of hazardous materials that exist in their work area. All employees, both current and new, shall be trained for the proper procedures to be utilized when working with hazardous materials. Furthermore, whenever a new hazardous material is introduced into the work area, all employees in that work area will be both informed and trained in the proper procedures for working with the new hazardous material.

1. All employees shall be informed of the Hazard Communication Program.
2. An overview of the requirements of the Hazard Communication Standard, including their rights under this regulation. These rights include:
  - a. to personally receive information regarding hazardous substances to which they may be exposed
  - b. for their physician to receive this information
  - c. against discharge or other discrimination due to exercising these rights
  - d. Access to any medical information pertaining to that employee
3. All employees shall be informed of possible physical and health hazards that exist in their work area.

4. All employees will attend an orientation meeting, initial hire meeting or tailgate safety meeting for information and training on the following items related to hazardous substances:
  - a. To personally receive information regarding hazardous substances to which they may be exposed
  - b. For their physician to receive this information
  - c. Against discharge or other discrimination due to exercising these rights
  - d. Access to any medical information pertaining to that employee information.
  - e. All methods and observations that are used to detect the presence of hazardous materials in the work area including possible leaks, spills or the release of hazardous materials in the work area.
  - f. Emergency/Cleanup Procedures in the event of a leak/spill/release of hazardous materials in the work area.
  - g. All employees shall be trained in the proper use of personal protective equipment and the company policies to protect employees from possible exposure.
  - h. Employees will also be trained to understand hazardous warnings and the definitions of chemical warnings, (i.e., the difference between combustible and flammable).
  - i. The physical and health hazards of the substances in use in their work areas.
  - j. Methods and observation techniques used to determine the presence or release of hazardous substances in the work areas.
  - k. The controls, work practices and personal protective equipment, which are available for protection against possible exposure.
  - l. Emergency and first aid procedures to follow if employees are exposed to hazardous substances.
  - m. How to read labels and Safety Data Sheets to obtain the appropriate hazard information.

5. The location and availability of the written hazard communication program, the list of hazardous substances and Safety Data Sheets will be made available to all employees
6. The program will be available from the Project Manager, Foreman or the Office regarding the use of hazardous substances in their specific work areas.
7. All employees shall have made available to them any medical/air monitoring information regarding their work area. Employees can obtain this information from the job site supervisor or the Company Hazard Communication Coordinator.
8. All employees shall be informed of how to get in touch with the company's Hazard Communication Coordinator for any questions regarding the company's Hazard Communication Program.
9. Any employee can receive a copy of the List of Hazardous Chemicals, Safety Data Sheets, proper handling of hazardous chemicals, Emergency Procedures and/or any piece of information from the Hazard Communication Program.
10. Each and every job site will have copies of the List of Hazardous Chemicals, Safety Data Sheets, proper handling of hazardous chemicals, and the proper procedures to handle a leak/spill/release of hazardous materials.
11. It is most important that all of our employees understand the information given in the initial orientation meetings. Information will be provided in a language understood by the employee. Any questions regarding the orientation meetings should be directed to the Office and the appropriate Project Manager or foreman.
12. When new substances are introduced into the workplace the Project Manager, foreman or manager will review the above items with each affected employee as they relate to the new materials.
13. The Project Manager, foreman or supervisor will be responsible for assuring that all the above information is communicated to new employees who will be working with hazardous substances, prior to starting work.
14. GUIDELINES FOR INSTRUCTIVE SEMINARS:
  - a. Attendance shall be taken.
  - b. The Company Hazard Communications Coordinator shall maintain all records that show exactly which. Employees were trained for which specific task(s), and record that show exactly what information was taught to each employee as an individual.

- c. The Company Hazard Communication Coordinator shall retain all employee quizzes, attendance records, and all other information gathered at the Instructive Seminars.

## **LIST OF HAZARDOUS SUBSTANCES**

1. An inventory list will be maintained of those materials determined to be hazardous under the Hazard Communication Standard that are typically found on our projects. A separate list will be maintained for our Warehouse and Shop.
2. These lists will be updated when new materials and substances are brought into the work place, and will be reviewed periodically to assure that all substances are properly shown.

## **CONTAINER LABELING**

1. No container of hazardous substances will be released for use unless the container is correctly labeled and the label or other form of warning is legible and readable. For non-English speaking employees, provisions will be made to review the English labels and translate the information to the worker in the language he or she is most comfortable.
2. All chemicals in bags, drums, pails, etc., will be checked by the foreman or his designee or Shop/Warehouse Manager to ensure the manufacturer's label is intact, is legible, and has not been damaged in any manner during shipment. Any containers found to have damaged labels will be held until a new label has been attached or the container will be returned to the supplier with a request that a properly labeled container be sent. Creamer Environmental, Inc. employees must not deface or remove labels of incoming hazardous chemical substances.
3. Each and every container must have the manufacturer's labels affixed to it at ALL times.
4. The labels are to include:
  - a. IDENTITY (name) of the chemical.
  - b. NAME & ADDRESS of manufacturer/importer/responsible party.
  - c. ALL HAZARDOUS WARNINGS & REQUIRED PROTECTIVE EQUIPMENT.
5. Hazardous warnings include, but are not limited to, the following descriptions of:
  - a. Physical Hazards, Health Hazards, and lists of Target Organs.

6. Containers that are delivered without proper labels are NOT to be accepted. Containers that do not have proper labels are in violation of the OSHA Hazard Communication Standard are NOT permitted in any work area at any time. Portable containers used solely by the employee who has transferred the substance from a labeled container must be properly labeled in our workplace by company policy.
7. The company must also receive the proper SDS for solid metal materials than give off hazardous materials when worked on.
8. If the chemicals from labeled containers are placed into "in-house" containers, they too must carry the IDENTICAL label that was affixed to the original container.
9. When chemicals are used in "in-house" stationary containers, such as dip tanks, signs/placards can be used instead of affixing labels. NOTE: The signs/placards MUST carry the identical information found on the original container. When the use of labels is ineffective, Signs, placards, batch tickets, and/or other written materials can be used with stationary processing equipment PROVIDED THAT ALL of the information found on the original container label is included.
10. It is the responsibility of the job site supervisor and the Company's Hazard Communication Coordinator to insure that all labels are properly updated whenever a revision is made to a Safety Data Sheets.

## **SAFETY DATA SHEETS(SDS)**

1. Each and every chemical shall have a corresponding SDS on file with the Company Hazard Communication Coordinator (CHCC).
2. Prior to the delivery of any chemical, a SDS must be sent to the CHCC. If this is not possible, a SDS MUST accompany the chemical with delivery to the job site. If the latter is the case, the SDS is to be sent to the CHCC immediately after its arrival on the job site. A copy of all SDS will remain at each job site.
3. The CHCC and Project Management will review all incoming SDS for completeness. If an SDS is missing or obviously incomplete a new SDS will be requested from the manufacturer. OSHA will be notified, in writing, if a complete SDS is not received after 25 working days or if the manufacturer will not supply one. A record will be maintained of all requests for SDS addressed to manufacturers. Any employee or other person legally entitled to a SDS that has requested one which has not been received, will be given a copy of the requesting letter, and then provided a copy of the requested data sheet once it has been received.

4. Copies of SDS for all hazardous substances to which our employees may be exposed are kept in a binder on each Project. An additional copy will be maintained in the Office. These SDS are available to all employees, at all times, upon request. The Company Hazard Communication Coordinator (CHCC) will be responsible for maintaining the master binder and each Project Manager or foreman will maintain their project binder.
5. As these SDS are in English, provisions will be made to translate the content of these data sheets into the language most understood by an employee if the employee requests such translation.
6. New materials will not be introduced into our operations until a SDS has been received.
7. The purchasing personnel will make it an ongoing part of their function to obtain SDS for all new materials when they are first ordered.
8. Chemical(s) delivered to the job site without a SDS will not be accepted. It is our policy NOT to accept any material(s) without the proper SDS. Under no circumstances should there be any materials on the job site/work area/warehouse that do not have a SDS. This INCLUDES materials brought onto the job site by outside contractors/workers. It is the responsibility of the job site supervisor and the CHCC to ensure that all materials brought onto the work site have their own SDS.
9. Copies of ALL SDS are to be sent to each of the job sites that use/store the chemical.
10. Employees can gain access to any and all SDS by requesting them from the job site supervisor and/or CHCC.
11. It is our policy to update/revise all SDS when current information becomes available. It is the responsibility of the CHCC to update/revise SDS and to forward the additions/corrections to every job site that has a SDS on file.

## **CHEMICAL INVENTORY**

It is our policy that all hazardous or potentially hazardous chemicals shall be listed on the Chemical Inventory List.

Chemical Inventory Lists shall be available for each and every job site and shop.

Each supervisor is responsible for maintaining and updating the Chemical Inventory List.

Every time a new chemical is brought into the work area, it is the responsibility of the supervisor/Company Hazard Communication Coordinator to list the materials on the Chemical Inventory List.

The supervisor is also responsible for reporting any adjustments made on the Chemical Inventory List to the Company Hazard Communication Coordinator.

## **OUTSIDE CONTRACTORS OR OTHER WORKERS ON JOB SITE**

1. Everyone on the job site, regardless of who they work for, shall be informed of the hazardous materials that exist on the job site.
2. Outside contractors/workers **MUST** inform the job site supervisor and the Company Hazard Communication Coordinator of any and all hazardous materials that they bring on to the job site.
3. Employees are to be informed of the hazardous materials that are brought on to the site. Provisions must be made by the job site supervisor and the Company Hazard Communications Coordinator so that employees have the necessary training/protection/information.
4. The job site supervisor and the CHCC must keep records of the hazardous materials that are brought on to the job site by outside contractors/workers in the same fashion that they handle the Company's own Hazard material information. This includes Chemical Inventory Lists, SDS, Emergency Procedures, Labeling, and all other procedures that are used to record hazardous materials that are on the job site. In other words, hazardous materials that are brought on to the job site by Outside contractors/workers must be accounted for with the same measures that our company uses for its own hazardous materials.
5. It is the responsibility of the job site, supervisor. and the CHCC to inform outside contractors of the hazardous materials, the location of Safety Data Sheets, proper handling, emergency procedures, and ALL other pertinent information regarding the hazardous materials on the job site. In other words, Outside contractors/workers are to be informed/trained/protected with the same means that our employees are informed/trained/protected.
6. It is the responsibility of the job site supervisor/ the CHCC to meet with the supervisors of all outside contractors/workers to review the Chemical Inventory Lists, and SDSs to determine what special provisions must be made. This is to determine if outside contractors/workers or our employees need personal protective equipment. This meeting will also ensure that hazardous chemicals do not interact if they are not compatible.



## **NON-ROUTINE WORK TASKS**

Any employee who is assigned a non-routine work task **MUST** be informed of all of the hazardous materials in the work area. It is the responsibility of the job site supervisor to inform the employee of the hazardous material safety procedures for the job, and the correct usage of personal protective equipment that is necessary. The job site supervisor is to insure that the necessary monitoring and sampling has been completed in order to evaluate the hazards of the work area.

Infrequently, employees may be required to perform hazardous non-routine tasks. Prior to starting this work, each involved employee will be given information by his or her Project Manager, foreman or supervisor about hazards to which they may be exposed during such activity.

The control measures will be communicated with employees including special ventilation, respirators, the presence of another employee, and emergency procedures. This includes confined space procedures that are outlined in the Confined Space Entry Program.

An employee who is assigned a non-routine work task has the same right to see the List of Hazardous Chemicals, SDS, and any and all pertinent information as would a routine performer of the same task.

All Lists of Hazardous Chemicals, Safety Data Sheets, Handling Procedures, and necessary Personal Protective Equipment Lists are available on the job site or through the Company Hazard Communications Coordinator.

NOTE: Both the job site supervisor and the Company Hazard Communication Coordinator must be notified prior to the initiation of any non-routine work tasks.

## **PERSONAL PROTECTIVE EQUIPMENT DOCUMENTATION**

Documents regarding the proper usage of all personal protective equipment shall be kept on file with both the Company Hazard Communication Coordinator and the supervisors at all work sites. We shall strictly enforce compliance regarding the use of required personal protective equipment.

NOTE: Some personal protective equipment, such as respirators, requires a prior medical exam to be performed on the employee before he/she is able to utilize such equipment.

## **EMERGENCY EXPOSURE PROCEDURES**

In the event of an exposure to a hazardous material, the work site supervisor and the Company Hazard Communication Coordinator must be immediately notified so that the appropriate action(s) can be taken. All hazardous materials must have their own SDS

on file at the work site, which will clearly state the direct action(s) that must be taken to remedy the situation.

In the event of a spill/leak of a hazardous material, reference **MUST** be made to the material's SDS so that appropriate action(s) can be taken. The work site supervisor and the Company Hazard Communication Coordinator must be notified of a spill/leak.

## **POSTING OF INFORMATION**

It is the policy of our company to post information for the employees at the work site. In regards to the Company's Hazard Communication Program, our company will post information on the availability of Safety Data Sheets, Lists of Hazardous Materials, and where to obtain a copy of the written Hazard Communication Program. In addition, this company will post additional information related to keeping the employees informed on the hazards that exist in their work area.

## SECTION 32 - LOCK-OUT/TAG-OUT PROGRAM

On projects which utilize a client's or owner's program, a copy of the program procedures shall be secured by the Project Manager/Superintendent.

### **RESPONSIBILITIES**

The Project Manager/Superintendent has overall responsibility for establishing and ensuring compliance with this procedure.

It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

The lockout/tagout program field operation will be reviewed and inspected periodically by the Safety Superintendent or Area Safety Superintendent to determine the process is effective. The inspection will be documented with the date, equipment use, and the person conducting the inspection.

### **DEFINITIONS**

Danger Tag: A numbered tag stating "DANGER" on both sides in white letters on a red, white, and black background with specific instructions to protect personnel working on equipment and/or systems.

Energy Source: Any electrical, mechanical, hydraulic, pneumatic, chemical, radiation, thermal, or compressed gas energy stored in springs; and potential energy from suspended objects (gravity) that may injure personnel, cause property damage and/or cause a release of hazardous substance to the environment.

Isolation: A physical activity using a device which prevents the transmission or release of energy. Examples of devices used to isolate equipment/systems include, but are not limited to: Restraint blocks, electrical circuit breakers, disconnect switches, removal of fuses, slip gate, slip bind, or use of double valves.

NOTE: Where possible, such devices shall provide visible indication of the position of the device (push buttons, selector switches, and other control circuit type devices are not energy isolation devices).

Locking Device: A device that utilizes a lock, key and identification number to hold an energy isolation device in the safe position for the purpose of protecting personnel.

Tag Disposal: The act of returning all approved and removed tags to the Project Manager, Supervisor, or Engineer, who then destroys the tags to prevent reuse.

## **APPLICATION**

### **A. General**

1. A properly established Lock-Out/Tag-Out Program represents a lifesaving control. Compliance with this procedure is mandatory. Questions regarding the Lock-Out/Tag-Out Program should be directed to the Project Manager/Superintendent.
2. Where design permits, a lock shall be applied in support of a "DANGER" tag to ensure the energy source is kept isolated. Whenever major replacement, repair, renovation, or modification of machines or equipment is performed, or new machines or equipment are installed, energy isolation devices shall be designed to accept a locking device.
3. No device shall be operated with tag or lock attached regardless of circumstances.
4. In an emergency, or if the person who placed the tag is not available, the Project Manager/Superintendent shall have the authority to remove the danger tags and locks **ONLY AFTER POSITIVELY DETERMINING THAT THE EQUIPMENT OR SYSTEM IS SAFE FOR OPERATION AND THAT ALL PERSONNEL ARE IN THE CLEAR.**
5. Personnel deviating from these instructions, or unauthorized persons removing danger tags, will be subject to disciplinary action to include their removal from the project.

### **B. Implementation**

1. Use of Locks and Tags
  - a. Locks and "DANGER" tags shall be used by authorized personnel when the release of energy can cause injury to personnel create property damage, or release a harmful substance to the environment. If locks cannot be used, an alternate method of isolating the system must be implemented. Tags will always be used.
  - b. Only authorized individuals install the lock and tag on the equipment or system requiring the energy source to be controlled. In operations where more than one individual is working on the equipment or system, each individual installs a lock and tag. Each authorized individual will place their name and identification on the tag they use.
  - c. The lock and tag should be affixed in a way to insure that the energy isolating devices is in a safe position, cannot move, will not allow operation and is in the off

position. The tag should be attached at the same point at which the lock fastened. Where a tag cannot be fastened directly to the energy isolating device, the tag shall be located as close as possible to the energy isolating device in a position that will be obvious to anyone attempting to operate the equipment or device.

- d. Before an authorized turns off a machine or equipment, the authorized individual shall have knowledge of the type & magnitude of the energy, the hazards of the energy to be controlled, & the methods or means to control the energy.
- e. The machine or equipment shall be turned off or shutdown using the procedures established by the manufacture for the machine or equipment.
- f. The authorized individual installer verifies that the equipment or system has been properly isolated. Verification is accomplished by operating or testing the equipment or system for energy release. If there is any doubt regarding the isolation of the equipment or system, the Project Manager/Superintendent should be contacted. The use of system schematics, isometrics, etc., should be used when determining isolation points. Critical systems may be parallel feed from a separate source and must also be isolated.
- g. All energy isolating devices that are use control to the machine or equipment shall be physically located & operated in such a manner as to isolate the machine or equipment from the energy source. All potentially hazardous stored or residual energy shall be relieved, disconnected, restrained & otherwise rendered safe. If there is a possibility of reaccumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
- h. After a physical check has been conducted of the area to ensure all personnel working on the equipment or system are accounted for, the installer removes the lock and tag for the area/activity under his/her authority.
- i. When machine or equipment must be tested foe operation, the following sets must be followed:
  - a. Clear away tools
  - b. Remove employees
  - c. Remove the locks and tags
  - d. Energize & proceed with testing;
  - e. De-energize & reapply energy isolating device control measures.

- f. Authorized individuals should documented this process using the Log Book
- j. The installer returns the lock and tag to the designated area and enters into the log book the date the lock and/or tag were removed.
- k. The individual destroys the tag after the information is logged.

#### C. Requirements for Locks and Tags

- 1. The Project Manager/Superintendent, numbers each lock (serial numbers on locks can be used) before placing it in use to ensure it can be accounted for. A list of lock numbers is kept by the Project Manager/Superintendent.
- 2. The key of one lock does not fit any other lock.
- 3. Each tag shall be numbered and logged in the log book by the Project Manager/Superintendent before being placed in use to ensure accountability.
- 4. The authorized individual using the tag completes the information contained on the tag, such as:
  - a. Log book location
  - b. Job identification
  - c. Installed by (signature of Project Manager / Superintendent / Foreman)
  - d. Component tagged
  - e. Component position
  - f. Any special instructions of the employees

#### D. Requirements for Log Book

- 1. A log book is required to account for each tag and lock that is issued.
- 2. Each time a lock and tag is put in use information is completed in the log book, such as the following.
  - a. Tag number
  - b. Lock number
  - c. Work number
  - d. Craft number
  - e. Location of the tag and/or lock

- f. System or component that was affected
- g. Date and time lock and/or tag was attached
- h. Individual using lock and tag
- i. Date and time lock and/or tag is returned to cabinet.

#### E. Training

1. All affected employees must be trained company lockout/tagout procedures
2. The training must include:
  - a. Recognition of hazardous energy source, type & magnitude of energy available, methods & means necessary for energy isolation & control.
  - b. The purpose & use of the energy control procedure.
  - c. When lockout/tagout systems are used including the limitations of a tag (tags are warning devices & do not provide physical restraint).
  - d. A tag is not to be removed without authorization. The tag is never to be ignored or defeated in any way.
3. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced.
4. All training and/or retraining must be documented, dated, signed & certified
5. Other employees shall be trained in this procedure.
  - a. On projects utilizing a lock out/tag out program which differs from ours, our employees shall be trained in the applicable program.

#### F. Group Locks and Multiple Groups

1. The Project Manager/Superintendent or designated authorized coordinator has primary responsibility for a set number of employees working under the protection of a group lockout/tagout device.
2. The authorized coordinator must ascertain the exposure of individual group members.
3. Each authorized individual shall attach a personal lockout/tagout device to the group's multi hasp device while he/she is working on the machine or equipment.

Remove of all authorized individuals lockout/tagout device can only be conducted with all affect parties and authorized coordinator's knowledge and permission.

4. During shift change or personnel changes, all lock/out tagout procedures must be coordinated with all affected parties. Documentation of this process should be maintained in the Log Book.
5. Group locks and tags may be utilized when all employees of the group are signatory to the log book when checking out; and when returning the lock/tag

G. Outside Personnel, Contractors, Process Safety Management

1. Outside servicing personnel or contractor employees involved in the application of energy isolating devices, must be informed use of their lock/tagout procedures. We will in turn inform them of our policies.
2. We shall ensure that the outside personnel or contractor employees understand and comply with the restrictions and prohibitions of the Creamer's energy control program, lockout/tagout procedures, and energy isolating devices.



**LOCK OUT / TAG OUT SHEET**

Tag #	Lock #	Brass #	System Affected	Estimated Duration	Date Issue	Date Returned

## SECTION 47 – MARINE SAFETY POLICY

The following apply and shall be considered when working adjacent to or about water:

- No employee of Creamer Environmental, Inc. shall enter the water under any circumstances, with the exception of abandoning ship based on a life threatening situation
- PFD's (Personal Flotation Devices) are required and shall be inspected before each use
- A designated boat operator and a qualified alternate operator shall be designated
- All water work is prohibited unless a lifesaving skiff and operator are immediately available
- Throw able device(s) with at least 90 feet of line mounted in a conspicuous location
- Distance between throw able devices should not exceed 200 feet
- Lifesaving skiff must be immediately available and ready to launch with an adequate outboard motor and oars
- Employees must work in pairs & must designate a rescue person and have a clear rescue plan in place
- All gangplanks should be 36 inches wide with proper hand and guardrails
- No refuse or materials shall be disposed overboard
- All firefighting equipment must be kept clear for access
- Aisles and gangways must be clear at all times
- At no time will any gases and their hoses be left near or in a confined space
- Two taglines are to be used for all loads
- No one is allowed to manhandle any load or walk on unstable stacked material
- Davits and other protrusions from barge deck are to be identified with yellow paint
- Hard hats, safety glasses and safety shoes worn at all times

- Always check weather and tidal conditions
- When working offshore keep a close eye for fast approaching storms especially in the Spring/Summer months
- Anytime personnel are required to work around intake structures extreme care should be taken. This includes
  - Shutting down of intake structure
  - Netting
  - Lifelines attached to the person
  - Locking out of cathodic protection
- Underwater Obstructions are found throughout the waterways both on and offshore.

Most are detailed by signs and posted on drawings

Some types to be aware of:

- Pipelines
- Electrical lines
- Cable systems/Communications
- Water Intakes and Outflow
- Sunken craft
- Reefs = both manmade and natural
- Low tide can allow areas to become very low thus damage from oyster beds and gravel bottoms to the watercraft

### **Life Saving Skiff**

- When operating a registered vessel more than 12 ft in length, personnel must be certified by the USCG with a minimum of the NJ Boater Safety Course.

### **Regardless of the size of the skiff/vessel it must be equipped with the following:**

- Searchlight
- Two oars or paddles and engine per OSHA regulations
- Throw able device with line attached
- Adequate anchor and line
- Safe Egress to/from the Boat must be provided
- Life Vest for all occupants
- Regular inspection performed with written documentation

- No one is allowed to ride in a standing position unless dictated by boat design
- Shall not be loaded beyond the overall passenger capacity
- Operator is responsible for the boat at all times

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## **APPENDIX II FORMS**

Creamer Environmental Inc.  
12 Old Bridge Road  
Cedar Grove, NJ 07009  
Ph: 201-968-3300 Fax: 201-968-3301  
**Daily Sign-In and Safety Meeting Job # 16-0463**

Project: Metal Bank NPL Site  
Location: 7301 Milnor St, Philadelphia, PA  
Superintendent:

Date:  
Client Rep.:  
Tailgate Meeting:

Emergency Procedures: Notify Superintendent. Secure site. Use first aid and/or spill training as needed. Meet at rally point.

**Safety Meeting Topic:** \_\_\_\_\_

Hospital: Jeannes Hospital  
7600 Central Avenue  
Philadelphia, PA

Hospital Phone #  
215-728-2000

**Equipment  
Checked**\_\_\_\_\_

Today's Activities: \_\_\_\_\_

**Attendees:**

Print	Sign	Company	Time In	Time Out
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
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21				
22				
23				
24				
25				

**12 Old Bridge Road Cedar Grove, New Jersey 07009**  
**Tel. 201-968-3300 Fax. 201-968-3301**

[illegible]

CREAMER ENVIRONMENTAL, INC.  
HOT WORK PERMIT

This hot-work permit is required for any activity that may produce open flame, sparks, or elevated temperatures. Activities subject to this permit include, but are not limited to: welding, cutting, or burning using acetylene/propane/butane type torches, arc-welding, or work that may generate sparks. Only personnel who have been properly trained can issue Hot-Work Permits.

Permit Issued to:  Location of Proposed Work:	Date:  Time:  Permit is Valid for 24 Hours
Description of Activities:	
<p>Identify all hazards associated with the planned hot-work activity:</p> <ul style="list-style-type: none"><li>• Burns to the body</li><li>• Combustibles</li><li>• Overhead loads</li></ul> <p>Describe precautions that must be taken prior to commencing work:</p> <ul style="list-style-type: none"><li>• Proper PPE</li><li>• Fire Extinguisher</li><li>• Operator communication</li><li>• Fire Watch Required (Circle One)    Yes    No</li></ul>	
<p>Signature of person permit issued to:_____ Date:_____</p> <p>Signature of Authorizing Supervisor:_____ Date:_____</p> <p>Signature of Permit Issuer:_____ Date:_____</p> <p>Comments: Keep combustibles 35 feet away.</p>	



[illegible]

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**APPENDIX III**  
**(M)SDS & CHEMICAL INFORMATION**

# International Chemical Safety Cards

## POLYCHLORINATED BIPHENYL (AROCOR 1254)

ICSC: 0939



Chlorobiphenyl (54% chlorine)  
Chlorodiphenyl (54% chlorine)  
PCB  
Molecular mass: 327 (average)

ICSC # 0939

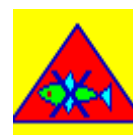
CAS # 11097-69-1

RTECS # [TQ1360000](#)

UN # 2315

EC # 602-039-00-4

October 20, 1999 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
<b>FIRE</b>	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: powder, carbon dioxide.
<b>EXPLOSION</b>			
<b>EXPOSURE</b>		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
• <b>INHALATION</b>		Ventilation.	Fresh air, rest. Refer for medical attention.
• <b>SKIN</b>	MAY BE ABSORBED! Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
• <b>EYES</b>		Safety goggles, face shield.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• <b>INGESTION</b>	Headache. Numbness.	Do not eat, drink, or smoke during work.	Rest. Refer for medical attention.
SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING	
Consult an expert! Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection:	Separated from food and feedstuffs . Cool. Dry. Keep in a well-ventilated room.	Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. Severe marine pollutant.	

complete protective clothing including self-contained breathing apparatus.

Note: C  
Xn symbol  
N symbol  
R: 33-50/53  
S: 2-35-60-61  
UN Hazard Class: 9  
UN Packing Group: II

**SEE IMPORTANT INFORMATION ON BACK**


**ICSC: 0939**

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

# International Chemical Safety Cards

## POLYCHLORINATED BIPHENYL (AROCOR 1254)

**ICSC: 0939**

<p><b>I M P O R T A N T D A T A</b></p>	<p><b>PHYSICAL STATE; APPEARANCE:</b> LIGHT YELLOW VISCOUS LIQUID.</p> <p><b>PHYSICAL DANGERS:</b></p> <p><b>CHEMICAL DANGERS:</b> The substance decomposes in a fire producing irritating and toxic gases .</p> <p><b>OCCUPATIONAL EXPOSURE LIMITS:</b> TLV: 0.5 mg/m<sup>3</sup> as TWA; (skin); A3; (ACGIH 2004). MAK: 0.05 ppm, 0.70 mg/m<sup>3</sup>; H; Peak limitation category: II(8); Carcinogen category: 3B; Pregnancy risk group: B; (DFG 2004). OSHA PEL: TWA 0.5 mg/m<sup>3</sup> skin NIOSH REL: Ca TWA 0.001 mg/m<sup>3</sup> <a href="#">See Appendix A</a> *Note: The REL also applies to other PCBs. NIOSH IDLH: Potential occupational carcinogen 5 mg/m<sup>3</sup></p>	<p><b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.</p> <p><b>INHALATION RISK:</b> A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.</p> <p><b>EFFECTS OF SHORT-TERM EXPOSURE:</b></p> <p><b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> Repeated or prolonged contact with skin may cause dermatitis. Chloracne is the most visible effect. The substance may have effects on the liver . Animal tests show that this substance possibly causes toxic effects upon human reproduction.</p>
<p><b>PHYSICAL PROPERTIES</b></p>	<p>Relative density (water = 1): 1.5 Solubility in water: none</p>	<p>Vapour pressure, Pa at 25°C: 0.01 Octanol/water partition coefficient as log Pow: 6.30 (estimated)</p>
<p><b>ENVIRONMENTAL DATA</b></p>	<p>In the food chain important to humans, bioaccumulation takes place, specifically in aquatic organisms. It is strongly advised not to let the chemical enter into the environment.</p>	
<p><b>NOTES</b></p>		
<p>Changes into a resinous state (pour point) at 10°C. Distillation range: 365°-390°C. Card has been partly updated in October 2004. See sections Occupational Exposure Limits, EU classification, Emergency Response.</p> <p>Transport Emergency Card: TEC (R)-90GM2-II-L</p>		

<b>ADDITIONAL INFORMATION</b>	
<b>ICSC: 0939</b>	
<b>POLYCHLORINATED BIPHENYL (AROCLOR 1254)</b>	
(C) IPCS, CEC, 1994	

<b>IMPORTANT LEGAL NOTICE:</b>	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.
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